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INVESTIGATION OF THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

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HEARINGS BEFORE THE SELECT COMMITTEE ON ASSASSINATIONS OF THE U.S. HOUSE OF REPRESENTATIVES NINETY-FIFTH CONGRESS SECOND SESSION

SEPTEMBER 11, 12, 13, 14, AND 15, 1978

VOLUME II

Printed for the use of the Select Committee on Assassinations



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WASHINGTON : 1979

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(II)

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INVESTIGATION OF THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

MONDAY, SEPTEMBER 11, 1978

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON ASSASSINATIONS,
Washington, D.C.

The select committee met, pursuant to adjournment, at 9:10 a.m., in room 345, Cannon House Office Building, Hon. Louis Stokes (chairman of the select committee) presiding.

Present: Representatives Stokes, Devine, Preyer, McKinney, Sawyer, Dodd, Ford, Fithian, and Edgar.

Staff present: G. Robert Blakey, chief counsel and staff director; Elizabeth L. Berning, chief clerk; Leodis Matthews, staff counsel; and Gary Cornwell, deputy chief counsel.

Chairman STOKES. A quorum being present, the committee will come to order.

At the outset of this morning's hearings I would like to make some brief remarks.

This morning, the Select Committee on Assassinations begins its second week of public hearings into the death of President John F. Kennedy. The evidence to be heard today will be directed toward the number, direction and timing of the shots fired at President Kennedy in Dealey Plaza on November 22, 1963.

Much of the evidence heard last week by the committee tended to support the basic conclusions of the Warren Commission, which concluded that Lee Harvey Oswald was the lone assassin of the President.

The evidence to be heard today will be troubling to some persons. I would caution against those who would too quickly draw sensational conclusions from this evidence.

Mr. Justice Holmes used to say that the first requirement of a good theory was that it fit the facts.

Since all of the evidence in the Kennedy investigation is not in, it is not yet possible to fit any theory to the facts. A final resolution of the questions that may be raised by today's evidence must, therefore, await the conclusion of our hearings and the submission of our final report in December.

Mrs. BENSON. Mr. Chairman, my name is Mildred Benson. I am from Pittsburgh.

The Kennedy assassinations——

Chairman STOKES. Madam, you are disturbing a congressional hearing and that will not be tolerated.

Madam, I will have to ask you to leave the hearings.

Mrs. BENSON. These were political conspiracies. My family and I have been subjected to a savage program——

Chairman STOKES. Will the Capitol Police see that this lady is removed from the hearings?

Mrs. BENSON. John Kennedy and Robert Kennedy were killed by political conspiracy.

Chairman STOKES. The Chair recognizes Professor Blakey.

NARRATION BY G. ROBERT BLAKEY, CHIEF COUNSEL

Mr. BLAKEY. Thank you, Mr. Chairman.

Three days of testimony before the committee—both firsthand and expert in character—have indicated that a number of crucial issues in the Kennedy assassination turn on questions relating to the shots fired by the assassin or assassins.

How many were fired?

What was the time span between them?

From what direction were they fired?

Put succinctly: resolving the question of the number of those who participated in the assassination itself—a lone assassin or more than one gunman, that is, a conspiracy—may well hinge on the number of shots fired, the time interval between them, and the direction from which they were fired.

As we have seen, the Warren Commission was persuaded that there were at least two shots—more probably three—and they all came from the Texas School Book Depository, which was to the right rear of the Presidential limousine. The Commission found the discovery of three spent cartridge cases on the floor of the sixth story of the book depository, its most persuasive evidence on the question of the number of shots, even though the medical and ballistics evidence could account for only two shots.

Based on expert FBI testimony that the minimum time required to fire the rifle ranged from 2.25 to 2.3 seconds and an analysis of the Zapruder film, it also concluded that the time from the first to the last shot most probably ranged from 7.1 to 7.9 seconds.

The best way, of course, to determine the number of shots is to listen to them—either when they occur or subsequently—on a sound recording, if one were to exist. The Warren Commission was alerted to the possibility of such a recording, one that was made by Dallas radio station KBOX and later used as part of a phonograph record produced by Colpix, Inc., "Four Days that Shocked the World." A private citizen who had bought the record informed the commission on January 8, 1964 about the program and suggested that sounds of shots could be detected in an on-the-scene account of the assassination by Dallas reporter Sam Pate.

The Commission obtained the recording from KBOX, and on June 29 Assistant Counsel Arlen Specter wrote a memo to General Counsel J. Lee Rankin in which he noted, "Several members of the staff listened to the tape and heard two noises which sound like gunshots . . ."

On June 30, the Commission sent the tape to Dr. Lawrence Kersta of Bell Telephone Laboratories, Murray Hill, N.J. Dr. Kersta's analyses of the tape, however, were apparently inconclusive. I say "apparently," because attempts by this committee to find reports of Dr. Kersta's work have been to date unsuccessful.

Another way to try and pin down the number, time sequence and direction of the shots is to take testimony from on-the-scene witnesses. The Warren Commission conducted—or had conducted for it—exhaustive interviews of this character.

The recollections of the witnesses, however, were far from consistent. On the number of shots, the range was two to six, although three was seemingly the consensus. The time sequence ranged from 5 to 6 seconds.

On their origin, reactions were also mixed. Many witnesses thought they came from the general direction of the book depository, but a significant number of others put the firing point at a piece of elevated landscape to the front and right of the limousine that has come to be known as the “grassy knoll.”

Many witnesses frankly confessed confusion. For example, Abraham Zapruder, who stood on a concrete abutment in front of the grassy knoll and took his widely viewed movie of the assassination, said that he thought it came “from back of me,” but that there was “too much reverberation” to tell for sure.

In any event, it seems clear that any serious effort to explain or understand what happened in Dealey Plaza must take into account all of the firsthand evidence on number, time and direction—even when it is apparently in conflict.

On the other hand, some of the testimony relating to the direction of the shots was based on more than a reaction to the bark of a rifle. Howard L. Brennan, for example, said he actually “saw a man fire one shot” from the depository. James Jarman, who was on the fifth floor of the depository, also said he heard the sound of a bolt action of a rifle and the cartridge cases dropping to the floor above him.

Nevertheless, many critics have alleged that the Commission, in the ultimate analysis, forced the evidence on the question of number and direction into a mold consistent with the discovery of the three cartridge cases on the sixth floor of the book depository.

Mark Lane, for example, argues that this was how the single bullet theory came into being. In his “Rush to Judgment,” Lane writes the Commission “. . . salvaged its basic working hypothesis (the lone assassin theory) by concluding that the bullet that struck Governor Connally first struck the President.”

Josiah Thompson, in his “Six Seconds in Dallas,” did a statistical analysis of the statements of the witnesses to the shots. His findings support the commission on the number of shots but dispute it on the direction from which they came: 84.4 percent of them heard three shots, Thompson found, but of those who had an opinion as to direction, 52 percent thought they came from the grassy knoll, 19 percent from the direction of the depository.

Inevitably, of course, the select committee has had to attempt to unravel these conflicting views. Fortunately, it has had the aid of modern technology. New scientific methods have been applied to old evidence in some cases; in other cases, it has analyzed important pieces of new evidence that had previously been overlooked. For one example, the committee devised new tests for the Zapruder film, an original piece of evidence. For another, the committee asked a consultant to perform advanced computer studies with new

evidence, a sound recording of the assassination itself that has been only recently turned up.

The photographic experiments were conducted by the committee's photographic panel of experts. They involved attempts to analyze camera "jiggle" in an effort to record what may well have been the startled reactions to gunshot.

The thought was that Zapruder may have reflexively moved his camera when he heard each shot. By measuring the intensities of blurs on a given frame, it was hoped that the timing of the shots could be indirectly pinpointed.

Dr. William Hartmann was in charge of what has come to be known on the staff as the jiggle analysis. Dr. Hartmann received a B.S. degree in physics from Pennsylvania University in 1961, an M.S. degree in geology from the University of Arizona in 1965 and Ph. D. degree in astronomy from the University of Arizona in 1966. He has been assistant professor at the University of Arizona Lunar and Planetary Laboratory, associate and senior scientist at the IIT Research Institute and currently is the senior scientist at the Planetary Science Institute of Scientific Applications, Inc.

Dr. Hartmann is a member of the American Astronomical Society and is the cwinner of the 1965-66 Ninniger Meterorite Award. He has written numerous professional articles and has served as an associate editor of the Journal of Geophysical Research. He has authored a planetary textbook and coauthored a book on the planet Mars.

Dr. Hartmann served as a photo analyst for the U.S. Air Force/University of Colorado study of UFO's and served as photo analyst and coinvestigator on the Mariner 9 mission to photograph Mars.

It would be appropriate at this time, Mr. Chairman, to call Dr. Hartmann.

Chairman STOKES. The committee calls Dr. Hartmann.

Sir, will you raise your right hand to be sworn?

Do you solemnly swear that the testimony you will give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

Dr. HARTMANN. I do.

Chairman STOKES. Thank you.

You may be seated.

The Chair recognizes counsel Gary Cornwell.

Mr. CORNWELL. Thank you, Mr. Chairman.

Dr. Hartmann, as a member of the photo panel, did you conduct photographic analysis in order to determine if there was any measurable reaction on the part of photographers who were taking pictures in Dealey Plaza at the time of the assassination which might be associated with the sound of gunfire?

TESTIMONY OF WILLIAM HARTMANN

Dr. HARTMANN. Yes.

Mr. CORNWELL. What theoretical reason or justification would there be for conducting that type of analysis?

Dr. HARTMANN. I think there are several possible justifications for it that add together.

First, psychological experiments have shown that there is a rather universal startle reaction, and interestingly enough, the

classic work on this published in 1939 used gunshots before unsuspecting witnesses as the source of the stimulus to cause the startle reaction.

Second, using a motion picture camera such, as Mr. Zapruder's camera and his film, is an ideal test for startle reaction, because the photographer is attempting to hold this camera still or pan very smoothly, so that any startle reaction would cause a disturbance of that smooth panning motion.

Third, then there would be a question, was the stimulus, the gunfire in Dealey Plaza, loud enough to cause such a startle reaction.

I was present on August 20 when the committee did some test firing with the rifle similar to the one believed to have been used, and I found, first of all, that this was a very loud noise, louder than I had suspected, and in fact I attempted to take some pictures simultaneously with the gunfire and found that in three out of three cases my pictures were blurred when they were taken with gunfire and not when they were taken at other times.

In fact I think my pictures were probably more blurred, showed a larger startle reaction than Mr. Zapruder's.

Finally, it is a reasonable investigation to undertake because we know that there are some episodes of blur in the Zapruder film as you watch it.

Mr. CORNWELL. When did you first undertake this analysis?

Dr. HARTMANN. It was proposed in February, but we did not undertake it until July when it began to be apparent to the committee that there might be data from the acoustic analysis with which we could compare it, so that we would have some independent information to compare with.

Mr. CORNWELL. Who did you work with in the analysis?

Dr. HARTMANN. Frank Scott, who is a photo scientist with Perkin Elmer, and Elmer was also a member of the photo panel, and he did an independent set of measurements on the same film.

Mr. CORNWELL. Did the procedures which were selected, were they followed both by you and Mr. Scott, the same procedures?

Dr. HARTMANN. No. We used separate procedures. We both made a series of measurements on the film, but each decided for himself what system might be best to record in a quantitative way these blurs or jiggles.

Mr. CORNWELL. Just very briefly, would you tell us what the differences were between the two approaches that you took?

Dr. HARTMANN. Briefly, I measured the amount of blur or smearing of the image in each frame of the film, one frame at a time, and what Mr. Scott did was to follow from one frame to the next the position of the camera, where it was pointed in the landscape, and to see how smooth that tracking was between one frame and the next frame.

Mr. CORNWELL. So then would it be accurate to state that you measured the blur internally within the frame and Mr. Scott measured the blur which occurred between two frames?

Dr. HARTMANN. Yes, in a real sense mine is a measure of the blur while the shutter was open, and Mr. Scott's is a measure of the blur that occurred from the middle of the time the shutter was open on one frame to the time it was open on the next frame.

Mr. CORNWELL. I would like to show you exhibits F-224, 225, 226, and 227, which I believe have been previously admitted in this case.

The photographs correspond to frames 188 to 191 of the Zapruder film. I ask you if you would use those exhibits to illustrate first the technique which you applied.

[The information follows:]



JFK EXHIBIT F-224



JFK ЕхНІВІТ F-225



JFK ЕхНІВІТ F-226



JFK EXHIBIT F-227

Dr. HARTMANN. Yes. May I go over to the board?

Now these are frames 188 through 191 in order and it is a good example of what can be done. These are enlargements of part of the frame, but here you see a reasonably sharp frame, a rather typical frame, and there are some highlights on the car which appear as circular or slightly elliptical bright spots. So these are the smallest things that you can resolve, the smallest spots that you can see in the picture.

On this frame, you may be able to see that the spots are now elongated a little bit in this direction, meaning that while the shutter was open, the camera moved a little bit in that direction.

Now the camera is moving considerably more violently during the exposure, and we have an elongation in this direction, and here, finally, frame 191, which is quite seriously blurred and is in fact one of the more blurred frames in the sequence. So the length of these spots can be measured from frame to frame, and that gives a measurement of what we call the blur or the jiggle.

Mr. CORNWELL. So it would be possible then, I take it, to quantify the amount of blur or jiggle in the frame.

Dr. HARTMANN. Yes, by direct measurement of the length of this blurred spot, and that, in essence, is a measurement of the error in the photographer's accuracy in panning on the Presidential car that went by.

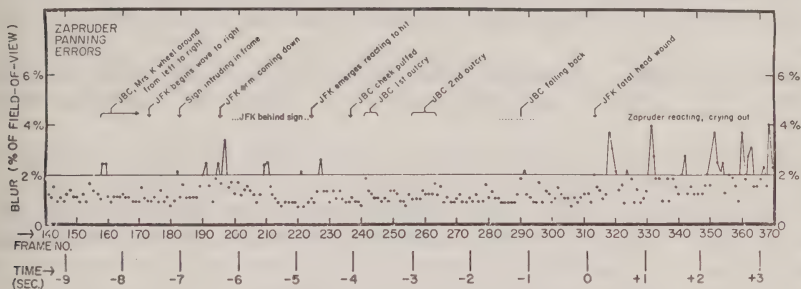
Mr. CORNWELL. I would like to show you JFK exhibit F-175 and ask you if you can identify that.

Dr. HARTMANN. Yes. This is a plot of the amount of blur that we measured by the technique I used on each frame.

Mr. CORNWELL. Mr. Chairman, at this time I would request that that exhibit be admitted into evidence.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-175

Mr. CORNWELL. Would you explain, Dr. Hartmann, what that exhibit illustrates or what it shows?

Dr. HARTMANN. Yes; I tried to plot the amount of blur. So the amount of blur is plotted in this vertical direction and it is expressed here in terms of the percent of the width of the field so that a blur right along here of this magnitude is about 1 percent of the width of the field. Up here it is about 6 percent of the width of the field.

These are the frame numbers. This is a running count of the time in seconds. I chose to use zero at about frames 310 to 311 because that would be the moment in essence when the man pulled the trigger on the gun. The bullet is seen to strike the head in 313, and the head is seen to explode at that time, so zero can be considered one known gunshot time.

Now each dot is a frame. And if you asked for a threshold and said are there any blurs greater than 6 percent, let's say, well, there would be none. And if you start to lower your threshold, coming down to about 4 percent, we start to pick up a blur. This one is frame 330, and as we come on down, we pick up more blurs.

Well, of course, if you go too low, you are getting into basically noise, just the ordinary jiggle, and we don't want to clutter up our analysis with looking at the ordinary jiggle. So I arbitrarily chose a threshold, and to make it a little bit clearer, drew a line here, and any jiggles or blurs or errors in panning that stick up above that line then are outlined with solid lines to make them clearer. So there are some patterns, or clusters of jiggles, which may be response to some sort of stimulus.

Mr. CORNWELL. I would like to ask you, if you could use the blackboard now which is behind you, and illustrate for us, if you could, Mr. Scott's analysis.

Dr. HARTMANN. Yes; he reasoned as follows: Suppose the car is coming by and the photographer is following the car precisely. He could be aiming his camera at the middle of each exposure as the

shutter opens and closes and opens and closes at a series of points which would be arranged in a nice smooth line and relatively equally spaced.

Now if any stimulus or any cause made him jiggle the camera or jerk the camera, we would have this pattern of regular pointing spots going on, and then perhaps, let's say, the camera moves in a downward direction. And so in the first case, we would have a line of points like that, but in the second case, a line like this, and this would betray an irregularity in the panning on the Presidential car.

Mr. CORNWELL. I would like to show you now JFK exhibits F-371, 372, and 373, and ask you if you would tell us what those are.

Dr. HARTMANN. I might just comment also, as that is being set up, that a way to express this measurement quantitatively and in a similar fashion to the other diagram would be to say that at this particular frame the photographer should move, in the next frame, he should move to this position, but, in fact, we discover that he has moved down here, so that this distance is a measure of the error. So it is possible to convert these into a set of quantitative measurements of the error. This is essentially a method known as just vector subtraction between these two lines.

Yes, and these are, first, an explanation of his method and enlargement of one sequence of frames in the fashion that he measured them and his entire sequence of measurements.

Mr. CORNWELL. So referring to JFK exhibit F-373, that is the entire sequence of the frames in the Zapruder film beginning at what point and ending at what other point.

Dr. HARTMANN. Yes; these run from in the 130's, when the Presidential motorcade comes around the corner, all the way to the 390's, as it disappears.

Mr. CORNWELL. And, would it be accurate to state that, JFK exhibit F-372 is simply a blowup of one portion of 373?

Dr. HARTMANN. Yes, it is; it is the first portion.

Mr. CORNWELL. May we have these three exhibits admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, they may be entered into the record.

[The information follows:]

PANNING OR JIGGLE RECORD OF ZAPRUDER FILMEXPLANATION

IF ZAPRUDER PANNED HIS CAMERA PERFECTLY, THE JIGGLE RECORD WOULD LOOK LIKE THIS:

START END

IF ZAPRUDER PANNED HIS CAMERA PERFECTLY, EXCEPT FOR A RAPID MOVEMENT WHERE HE MOVED HIS CAMERA DOWNWARD, THE JIGGLE RECORD WOULD LOOK LIKE THIS:

IF ZAPRUDER PANNED HIS CAMERA PERFECTLY, AND MAINTAINED GOOD HORIZONTAL PANNING BUT DID NOT PAN SMOOTHLY, THE JIGGLE RECORD WOULD LOOK LIKE THIS:

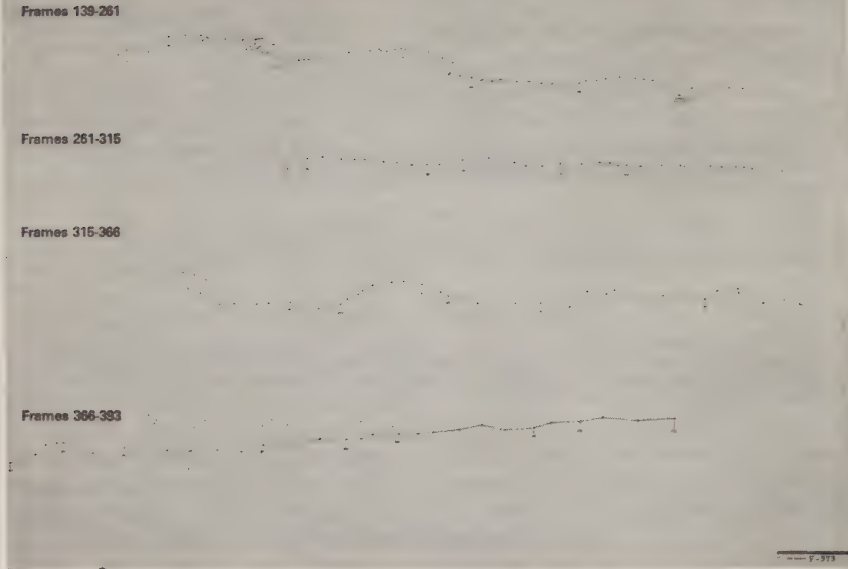
JFK EXHIBIT F-371

ZAPRUDER FILM

FRAMES 139-208



JFK EXHIBIT F-372

Panning or Jiggle Record of Zapruder Film

JFK EXHIBIT F-373

Mr. CORNWELL. Dr. Hartmann, referring to the center JFK exhibit F-372, would it be accurate to state that the blowup there illustrates that at some points in the film Mr. Zapruder in fact doubled back instead of going forward with his panning as you would expect?

Dr. HARTMANN. Yes. There is a slight doubling back, and I would just caution that there are different types of panning errors. In other words, there is this type that I sketched here. There is the type where you actually double back, but there is the type where you are going along in a straight smooth direction and suddenly move a great distance in this direction, all right, just to the right in the same direction, but by more than you should have, so that that produces a line, a straight line, still, and yet there is a very large error here. So don't be fooled into thinking that the only reactions or jiggles are the places where the line gets tangled. There may be some reactions in places where the line is spaced out by more than the usual amount.

Mr. CORNWELL. As the exhibits were being put up, you stated that you could quantify the results of the technique applied by Mr. Scott, the same as the technique that you had applied.

I would like at this time to show you JFK exhibit F-176, and ask you if you can identify that.

Dr. HARTMANN. Yes, sir. This is the same type of plot that was done with the set of measurements I made. The set of frame numbers are along the bottom and the amount of jiggle or blur plotted for each frame.

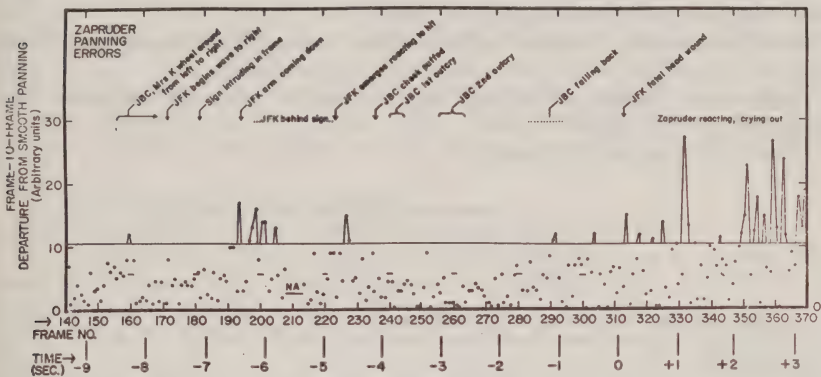
Mr. CORNWELL. In this case it relates to the Scott technique?

Dr. HARTMANN. Correct.

Mr. CORNWELL. We would ask at this time that that exhibit be placed into evidence, Mr. Chairman.

Chairman STOKES. Without objection it may be entered into the record.

[The information follows:]



JFK EXHIBIT F-176

Mr. CORNWELL. Now, in addition to the two approaches you have described, are you aware of any other way in which jiggle might be measured?

Dr. HARTMANN. Yes. The physicist, Luis Alvarez, has in 1976 published in the American Journal of Physics an analysis of the same film using a third method, and that method was basically to take the set of blurs similar to what I described first, what I was quoting in my method, and his reasoning is as follows: That if the blur, if the amount of blur stays the same from one frame to the next to the next, then essentially nothing is happening. But if there is a sudden change in the amount of blur, then that is a sensitive measurement of a disturbance. And so what he plotted was the difference in blur from one frame to the next. So that is a third set of measurements.

Mr. CORNWELL. When did you first become aware of Dr. Alvarez—

Dr. HARTMANN. That paper was circulated to us on the photo panel some months ago, but I purposely did not study his results until I finished mine and Scott's.

Mr. CORNWELL. I would like at this time to show you exhibit 177 and ask you if you can identify that.

Dr. HARTMANN. Yes, sir. This is an analysis or a plot showing all three sets of information on the same time scale now. So, for the first time we have a chance to really compare what the three independent and different types of measurements show, the same boxes here with the same set of frame numbers and the same timings, and, incidentally, I have noted some events as they happen along the sequence in the film, just to give you a reference to what is happening in the motorcade.

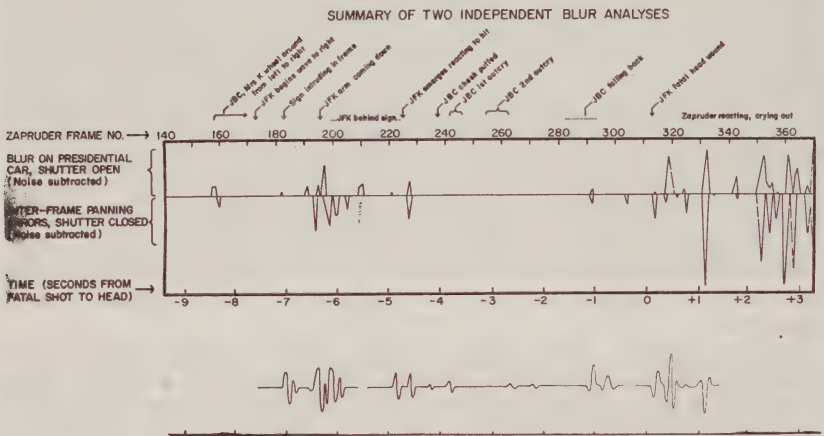
Now above the little line are the peaks, the greatest blurs that were measured by my technique, this is taken directly off that earlier graph. Below the line is just a flipped over image of the blurs or jiggles measured by Mr. Scott's technique, and I think you

find some pretty good agreement there. And then down at the bottom in red has been added directly, hand-copied from Alvarez's graph published in his paper, the set of measurements that he made, and, incidentally, they jiggle in both directions because he kept track of either what he called a positive blur in one direction or a negative in the other direction, so his are a kind of a squiggle, and ours are just motions up or down.

Mr. CORNWELL. I would like at this time, Mr. Chairman, to ask that JFK exhibit F-177 be admitted into evidence.

Chairman STOKES. Without objection, it may be entered into evidence at this point.

[The information follows:]



JFK EXHIBIT F-177

Mr. CORNWELL. Dr. Hartmann, can you tell us, from the analysis that you have just described, precisely when the shots were fired?

Dr. HARTMANN. Well, in my opinion, if you look only at this record of blur, in spite of the fact that there is pretty good agreement, it would be very difficult to say that a particular episode of jiggling here, a particular set of blurs, is the response to a gunshot.

The question is, we believe, that if there was a loud gunshot, there probably was a startle reaction. But there could have been other kinds of reactions that would cause jiggles, just false alarms. And so on the basis of looking just at the blur, I would say no.

However, if we then look at the photo visual evidence of what is happening in the parade, I think we can begin to identify some of these as gunshots.

Mr. CORNWELL. Would you explain that if you could in relation to frame 313—

Dr. HARTMANN. Yes.

Mr. CORNWELL [continuing]. Where the gunshot occurred?

Dr. HARTMANN. That, in particular, is perhaps the most significant one, where we know that there has been a gunshot. And we see that there is a very strong episode of this jiggling initiated at that time. The lapse time the jiggles begin—of course one has to define how do you detect when the jiggle really begins?

And perhaps the best way is to go, is to look at the frame group from when the jiggle initiates to when it reaches a maximum. In this case that is about 313 to 319. The shot was probably fired at 310, as I mentioned before, and that number of frames is consistent with the measures of startle reaction time that were reported in the book that I mentioned. So I think that is a good confirmation that we are really seeing here the reaction to both the sound of the gunshot and probably the visual sight of what happened on that shot.

Mr. CORNWELL. And would it be accurate to state that the second largest area of blur or jiggle, apart from the one which occurred shortly after the head shot, would be in the earlier portion of the film?

Dr. HARTMANN. That is correct.

Mr. CORNWELL. What frame is that associated with?

Dr. HARTMANN. About frames 190 to 200 there is a strong blur reaction initiated. So having concluded that this is in fact, that the blur sequence around 313 to 319 is in fact a response to the gunshots, I would think that the logical inference would be that the blur sequence, the blur episode, running typically from 190 to 200 is also a response to a possible gunshot. And we know that the President emerged from behind the sign somewhat later, some frames later, showing in fact a reaction to such a wound. So this could very well be the blur or startle reaction to the gunshot that caused the back wound to the President.

Mr. CORNWELL. And what, if any, corroboration is provided by this analysis to the Warren Commission's conclusion that the President and the Governor may have been shot in the vicinity of frame 210.

Dr. HARTMANN. Yes, they picked 210. I would say that to pick 210 in the face of this current evidence, to pick 210 as the time for that first shot, which is the Warren Commission's conclusion, would not be warranted from this evidence, because the blur before frame 210, from 190 to 200, is clearly much larger than any blur after frame 210. In fact, there is really very little evidence for a blur in the appropriate amount of time after frame 210.

Furthermore, there is some photo evidence that tends to support the thought of a shot in the time frame shortly before 190. For example, there is the Phillip Willis photograph which shows Mr. Zapruder in the background and the motorcade passing in between. Because the motorcade is in between, it is quite possible, quite easy, to determine exactly which Zapruder frame that corresponds to, because you can tell which part of the motorcade is passing between Zapruder and Willis. And Willis said that he took that photograph as a reaction. He pressed the shutter as a reaction to what he perceived as the first shot, at least a shot.

Well, it turns out that that frame is 202. So that means that Mr. Willis is telling us that he pressed the shutter as part of his reaction to a shot, and he was reacting at frame 202, while here we see that Mr. Zapruder is in the middle of his reaction at frame 202. So that is very nice consistent evidence that something happened, say, at 190 or shortly before 190.

Mr. CORNWELL. Mr. Chairman, I was incorrect earlier when I stated that JFK exhibits F-224, 225, 226, and 227, the Zapruder

film blowups, had been previously admitted into evidence. I would at this time ask that they be admitted into evidence.

Chairman STOKES. Without objection, they may be entered into the record at this point.

Mr. CORNWELL. I have no further questions.

Thank you, Dr. Hartmann.

Dr. HARTMANN. Thank you.

Chairman STOKES. The committee will defer questioning of this witness until later this afternoon after the committee has had the advantage of hearing the acoustical evidence, which will come into the record shortly.

Sir, we will defer our questioning of you until later this afternoon.

Dr. HARTMANN. Thank you.

Chairman STOKES. Thank you.

The Chair recognizes Professor Blakey.

STATEMENT OF G. ROBERT BLAKEY, CHIEF COUNSEL

Mr. BLAKEY. Thank you, Mr. Chairman.

In September 1977 the committee learned of the existence of a Dallas police tape, one that had recorded the sounds of the assassination from the transmitter of a motorcycle policeman who had accidentally left his microphone switch in the on position.

There was immediate hope that by scientifically enhancing the tape, the sound of the shots could be made audible.

The committee was told by the Dallas Police Department that it thought that all of its assassination evidence had been turned over to the FBI. It did not therefore have a copy of the tape. One was obtained, nevertheless, from Mary Ferrell, a critic who lived in the city of Dallas.

The committee then set out to find an acoustical consultant to analyze the tape. After consideration of five possible candidates, the committee picked the firm of Bolt, Beranek & Newman of Cambridge, Mass.

Bolt, Beranek & Newman can count among its many important forensic accomplishments an analysis of the tape-recorded sounds of the Kent State shooting incident in 1970 and the discovery and analysis of the 18-minute gap in the Watergate tapes.

B.B. & N. first analyzed the segment of the radio program, "Four Days that Shocked the World," that had been believed to have covered the assassination. As it turned out, it was not contemporaneous with the actual shooting of the President.

The committee then forwarded the tape it had obtained from Mary Ferrell to B.B. & N., but no audible sounds could be discerned in the analysis.

Meanwhile, committee investigators working on the case in Dallas were in contact with Paul McCaghren, a retired assistant police chief who had been assigned to a special Dallas police assassination investigating squad.

McCaghren was one of several Dallas police veterans who donated their firsthand knowledge of the city to the committee. They "read us into their backyard," so to speak, as one of our investigators so aptly put it. Their help has been invaluable.

Among the original documents and tapes that McCaghren supplied the committee was a crucial November 22, 1963 dispatch tape along with the dictabelts that recorded the transmission from the motorcycle with the open mike. These materials were promptly sent to Bolt, Beranek & Newman.

To supplement the analysis of the tape, B.B. & N. experts also went to Dallas last month to conduct an acoustical reenactment based on the live firing of a rifle in Dealey Plaza.

In these tests, the Dallas Police Department was exceptionally cooperative. It obtained weapons, constructed the bullet "traps" and rerouted traffic during the 5 hours of testing. Police marksmen fired rounds from the Book Depository, as well as from the "grassy knoll."

The final results of this work have only recently been received by the committee. Nevertheless, they have been thoroughly analyzed.

The man in charge of the Bolt, Beranek & Newman acoustical analysis is Dr. James E. Barger, the firm's chief scientist.

Dr. Barger received a B.S. in mechanical engineering from the University of Michigan in 1957, an M.S. in mechanical engineering from the University of Connecticut in 1960, and an M.A. in applied physics from Harvard University in 1962.

In 1964 he received a Ph. D. in applied physics from Harvard University. He has been a sonar project officer in the U.S. Navy Underwater Sound Laboratory, a research assistant at the Harvard University's Acoustics Research Laboratory, a senior scientist and director of the Physical Science Division with Bolt, Beranek & Newman, Inc.

Dr. Barger is the author of numerous scientific papers. He has lectured in the field of applied acoustics in the United States and Canada and currently is a lecturer on sound scattering and reverberations with Bolt, Beranek & Newman's antisubmarine warfare course.

He has been a National Science Foundation fellow and currently is a fellow of the Acoustical Society of America. He is also a member of the U.S. Naval Advisory Board for Underwater Sound Reference Services.

As chief scientist with Bolt, Beranek & Newman, Dr. Barger personally supervised the analysis of the 18-minute gap on the Nixon-Watergate tapes and the analysis, as I noted previously, of the gunfire sounds recorded during the shooting episode at Kent State University.

Mr. Chairman, it would be appropriate at this time to call Dr. Barger.

Chairman STOKES. The committee calls Dr. Barger.

Doctor, would you stand and be sworn?

Do you solemnly swear the testimony you will give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

TESTIMONY OF JAMES E. BARGER

Dr. BARGER. I do.

Chairman STOKES. Thank you. You may be seated. Mr. Cornwell.

Mr. CORNWELL. Thank you, Mr. Chairman.

Dr. Barger, I would like to first direct your attention to the point in time that our chief counsel just made reference to, namely, when the committee brought to you a tape recording and a Dictabelt of the Dallas Police Department's recordings of transmissions on November 22.

At that point in time, what did the committee ask you to try to do with that tape recording?

Dr. BARGER. Mr. Cornwell, there was a series of questions that were asked in increasing order of difficulty.

The first question and the least difficult potentially to answer was, simply, was the motorcycle with the stuck transmitter likely to have been in Dealey Plaza. If so, was the sound of shots recorded thereon or detectable thereon. And if that turned out to be the case, how many shots. If that could be determined, what was the time sequence between them, and if that could be determined, from what locations were the shots fired. And if by chance that also could be determined, what weapons fired the shots?

Mr. CORNWELL. Would there be some reason to believe that you could answer any or all of these questions?

Dr. BARGER. Well, the reason to believe that there may be answers to the latter questions was, of course, less likely than the former ones, but the answer was generally yes. The tapes had a good deal of noise on them, motorcycle noise, crowd noise, radio frequency interference, and the like. The most serious problem was the motorcycle noise. There is a way to help reduce that. It is a technique called adaptive filtering. It considers that the motorcycle is a repetitive device. As the cylinders fire, they do so periodically. The adaptive filter can learn to understand the event and project what will happen the next time the piston fires and subtract that noise out from the tape.

We thought once the adaptive filtering was conducted, the tape might then be noise-free enough to attempt a detection of the sounds of gunfire.

Now it was perfectly clear that these sounds were not clearly audible. There is in the field of detection theory a favorite approach called matched filtering. The matched filter is a device that is used to detect events that you have some understanding of, even though they are subaudible. Matched filters are used in radar sets commonly to detect the presence of impulsive signals in noise, even though they are not visible or audible in the raw data. There was reason to believe that applying these techniques we might be able to detect the impulsive sounds of gunfire.

Mr. CORNWELL. What, if anything, gave you reason to believe that you might be able to determine the direction from which gunfire came or the fact that it was gunfire?

Dr. BARGER. When an impulsive source of sound is generated in an enclosed or semi-enclosed environment, such as an urban environment, the impulsive sound spreads from the place where the sound was generated in all directions and is reflected, scattered, and diffracted into all possible receivers, such as microphones that might be stuck and such as ears.

Now the impulsive signals that arrive at these receivers—microphones or ears—over all of these paths through the processes of reflection, and scattering, occur in a unique pattern, and that

pattern depends on where the source of sound was and where the receiver is at that time. This unique pattern can be learned by, for example, reconstructing the sound of the acoustical event and measuring the unique pattern.

If the microphone or receiver moves from one place to another, the pattern will change, and it is in fact these echo patterns that are the matching patterns that we considered using in the matched filter as a very powerful method for detecting the possible presence of gunfire in the tapes.

Mr. CORNWELL. Let's begin with what you describe as the unique sound of gunfire, and at this point show you JFK exhibit F-357.

First, will you simply tell us what that is?

Dr. BARGER. This is an exhibit that illustrates the acoustical disturbance generated by a rifle firing a supersonic bullet in free space.

Mr. CORNWELL. At this time, Mr. Chairman, I would ask that that exhibit be admitted into evidence so that we may ask Dr. Barger further questions concerning it.

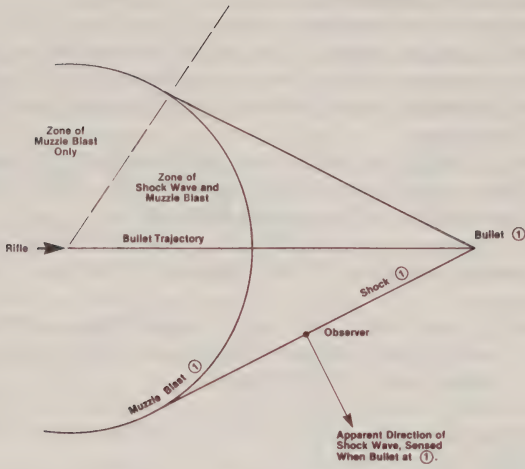
Chairman STOKES. I am sorry, Counsel? I didn't hear you.

Mr. CORNWELL. I would like to ask at this point if that exhibit might be admitted into evidence.

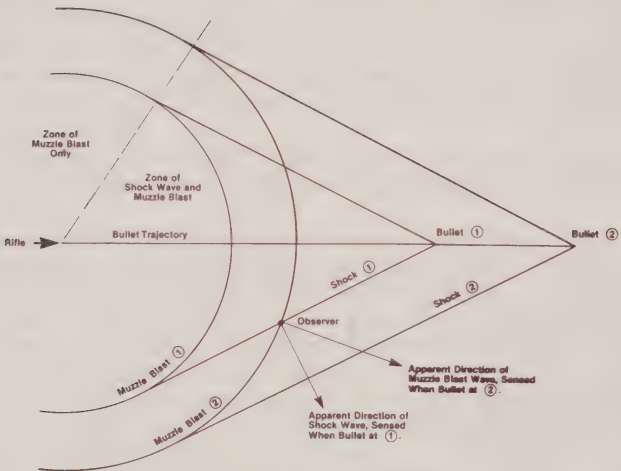
Chairman STOKES. Without objection, it may be entered.

[The information follows:]

Loc of Muzzle Blast and Shock Waves
at Two Times After Firing of Supersonic Bullet



Loc of Muzzle Blast and Shock Waves
at Two Times After Firing of Supersonic Bullet



JFK EXHIBIT F-357

Mr. CORNWELL. Would you at this point then, Dr. Barger describe this phenomenon using the exhibit?

Dr. BARGER. This simple diagram shows the location of a rifle firing a supersonic bullet along this horizontal trajectory. At the instant in time that this illustration depicts, the bullet is at position 1. The sound generated by the muzzle blast is expanding spherically around the origin of the gunfire, namely, the muzzle of the rifle.

At the time depicted here, that impulsive sound spherical surface has reached the point shown by the circle. The bullet, however, being faster than the speed of sound has advanced beyond the position of the sound wave. It generates a shock wave as a supersonic transport would and the locus of that shock wave is from the bullet itself to the tangent of the sound wave at this point. At a later time [now referring to the second exhibit] the bullet will have advanced, and both the shock wave and the sound wave would have expanded to the position shown here. The sound wave has expanded to this point, and the shock wave has progressed to this region.

If an observer were at this point, at the first time that I showed, when the bullet was at this point, the observer would hear the shock wave because it would pass him at that time.

At the second time that I show here, when the bullet is advanced to the second position, the sound waves of the rifle would reach the observer at that point and he would then hear the muzzle blast.

Mr. CORNWELL. You have emphasized at several points that this is a diagram showing the principles with respect to a supersonic bullet.

What, if any, differences would you find if the bullet were subsonic?

Dr. BARGER. If the bullet were subsonic, at the first time that I have shown when the muzzle blast has reached this point, the bullet would have lagged behind the position of the sound wave at that point, and it would always be behind; getting farther and farther behind, as time went on; and no shock wave is generated by that bullet.

Mr. CORNWELL. If you wanted to look at those principles on a recording, would there be a way that you could do that?

Dr. BARGER. Yes. This observer is the same as the receiver I spoke of earlier. It could be a microphone or an ear, and therefore what I said for this observer holds for the—

Mr. CORNWELL. I would like at this point then to show you JFK exhibit F-364 and ask you if you could tell us what that is.

Dr. BARGER. This is an illustration of the shape of the acoustical waveform generated by two rifles.

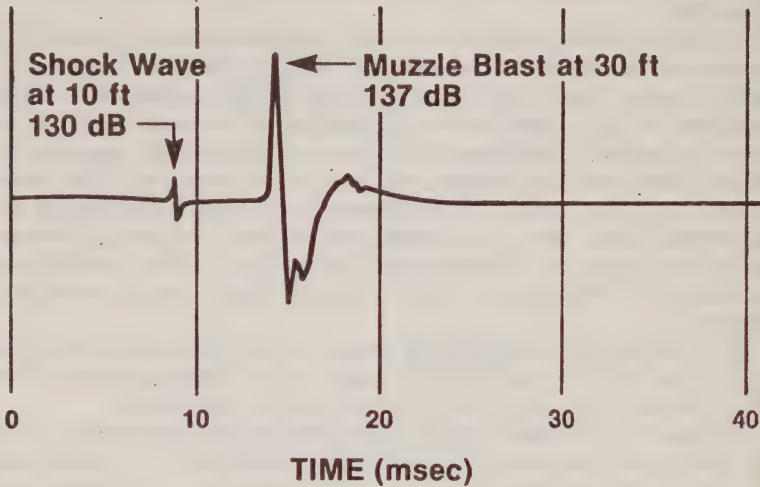
Mr. CORNWELL. At this point, Mr. Chairman, I would like to ask that JFK exhibit F-364 be admitted into evidence.

Chairman STOKES. Without objection, it may be entered into the record at this point.

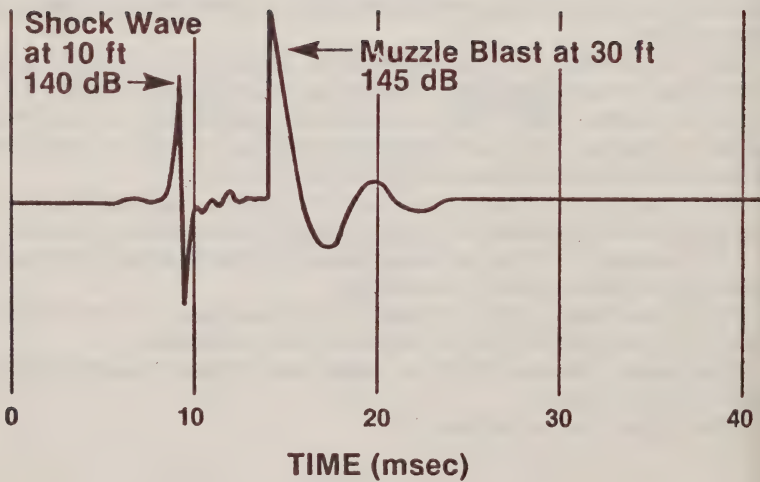
[The information follows:]

Muzzle Blast and Shock Waveforms for Mannlicher Carcano and M-1 Rifles.

MANNLICHER CARCANO



M-1



Mr. CORNWELL. Would you now, Dr. Barger, tell us what that exhibit illustrates?

Dr. BARGER. At the top of the illustration we show the acoustical waveforms of both the shock wave and the muzzle blast from a Mannlicher-Carcano. The shock wave was measured by a microphone 10 feet from the trajectory of the bullet and the muzzle blast was measured by the same microphone which was at the same time 30 feet from the muzzle.

All of the acoustical pressures are plotted here as a function of time measured in milliseconds. The shock wave is a very sharp event looking something like the letter "N," capital letter "N" and in this case, with this weapon, the peak pressure of the shock wave is 130 decibels.

Now let me just briefly describe the decibel as a measure of acoustical intensity. The reference pressure for the decibels that I describe is 2 times 10 to the minus 5 newtons per square meter, the currently standard reference pressure. With respect to that pressure, the shock wave has an intensity of 130 decibels.

The muzzle blast at 30 feet is more intense. It has an intensity of 137 decibels.

Let me just give you a few facts about decibels that will help make this clear.

If two sounds are otherwise similar but have a different loudness, a different intensity by 10 decibels, the louder of the two will sound twice as loud. On the other end of the scale, if two sounds are so slightly different in intensity that you can just perceive that difference, they will be different by 3 decibels.

The muzzle blast then, more intense by 7 decibels, would sound almost twice as loud as the shock wave. It has a very sharp peak, a negative undershoot followed by quiescence, and these are characteristic of the waveforms of that rifle.

A rifle firing a bigger charge is the M-1 rifle. It also has a faster round. The muzzle velocity of the Mannlicher-Carcano is about 2,000 feet per second. The M-1 is close to 3,000. Therefore the intensity of the shock wave radiated by the M-1 is greater—being about 140 decibels when measured 10 feet from the flight path—is twice as loud as the Mannlicher-Carcano shockwave. The muzzle blast is also more intense. At 30 feet it would be about 145 decibels, being something less than twice as loud as the Mannlicher-Carcano.

Mr. CORNWELL. I suppose we are all aware that the Dallas Police Department found a Mannlicher-Carcano on the sixth floor of the book depository, and the Warren Commission concluded that was the weapon used in the assassination. So I guess from that we could assume why you chose a Mannlicher-Carcano in the top graph to illustrate the principles you just described. But why did you choose an M-1 to illustrate in the lower portion of the graph?

Dr. BARGER. Well, for one reason we had the data. The principal reason was that it is the loudest rifle that one could conceive might have been used in that environment. And the purpose then is to show that the loudest one we might have conceivably used is less than twice as loud.

Mr. CORNWELL. I would like to now direct your attention to the part of your previous resume that referred to the fact that you

might be able to locate the shots and ask you if you would direct your attention at this time to JFK Exhibit F-334.

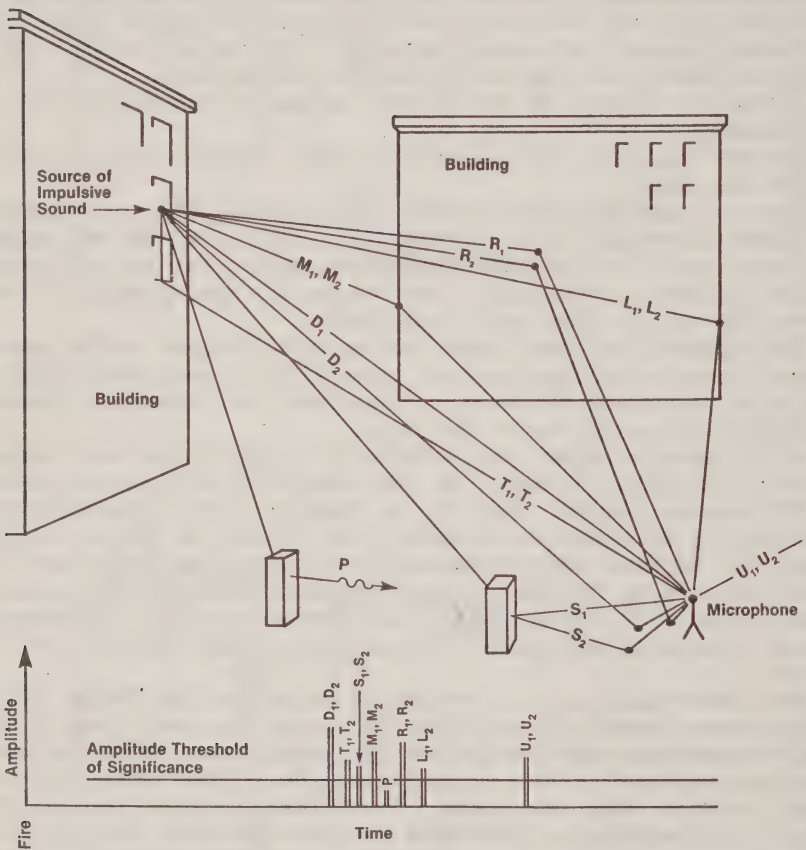
Dr. BARGER. Yes. This is what is known in the field of scientific presentation as a cartoon. It illustrates the formation of echo patterns in urban environments.

Mr. CORNWELL. At this time, Mr. Chairman, I would ask that JFK exhibit F-334 be admitted into evidence.

Chairman STOKES. Without objection, it may be entered in the record at this point.

[The information follows:]

Echo Patterns Caused by Direct, Reflected, Diffracted, and Scattered Impulsive Sounds in an Urban Environment.



JFK EXHIBIT F-334

Mr. CORNWELL. Would you explain then what the principles are that are illustrated by that?

Dr. BARGER. Yes. I have said we are aiming for the application of a matched filter to the Dallas Police tape that Mr. Blakey described, seeking the possible detection of gunfire thereupon.

Now the pattern that will be the match in this filter would be an echo pattern as generated at a receiver, such as a microphone, in an urban environment that has buildings and an impulsive sound source that might have been generated in one of them.

In the lower figure here, we show, along the horizontal scale, time increasing, and in the vertical scale here the amplitude of sound that might arise at any particular time.

Now the sound from the muzzle of the rifle expands as I showed in the first exhibit, and it propagates along this direct path, which is the path having the least length between the source and the microphone. But I have illustrated that there are two here very close together marked D_1 and D_2 .

The reason for that is that next to the direct path is another ray of sound that hits the street just below the microphone and reflects up into the microphone. Those two paths have very nearly the same length, therefore, they occur at very nearly the same time, and they have very nearly the same amplitude, and so I have plotted them at this same point.

Now, sound propagating over this direct path loses energy only by spreading out to fill the sphere that I described in the first exhibit. Sound paths having the next highest amplitude are those that are reflected from the surface of a building. Reflection occurs whenever the angle of the sound ray incident upon the building is reflected from it at the same angle. The same sound that hit the building was reflected off. It is still going after reflection in only one direction, just as it was before reflection. Therefore, it has not been diminished in intensity. It has merely had the direction of its propagation changed. It then hits the microphone as does another similar path hit the street and then the microphone. These two paths being longer occur later. They are marked with R_1 and R_2 here, illustrating the reflected direct and reflected surface bounce path.

The sounds that comprise echo patterns that have the next stronger amplitudes are the diffracted paths. These paths hit large edges such as the corner of a building. Now when the sound strikes the corner of that building, it is spread out in a plane that I am now describing with this pointer. It goes into all directions within that plane, including the direction of the microphone. Since some of the sound that hit that corner at that time went in other directions it is diminished in amplitude at the time it arrives at the microphone. Therefore, Path M that I just described, which is clearly shorter than the Path R because this corner is closer to the source than was the reflection path is right there, has a lower amplitude than the reflective path had.

The furthest corner of the building will give a diffracted path similarly.

Now, we have discussed reflections and diffractions.

The third most important, but generally the weakest method of changing the direction of sound is by scattering. I have illustrated

a parallelogram here which represents people or automobiles or anything of small size. When the sound hits an object of small size, it is sent out in all directions, including the direction of the microphone.

Having been sent in all directions in space, it is diminished in amplitude considerably, so only if that scattering occurs close to the microphone, as I have shown here, or if the scattering object, namely this windowsill, is close to the source, as I have shown here, will those paths have sensible amplitude.

In order to have significant amplitude, the scattering object has to lie close to the direct path.

Therefore the traveltime over the scatter path has to be only slightly larger than the traveltime over the direct path. Therefore, right after the loud sound arrival you see lots of weaker sound arrivals that are scattered from small objects.

There are other buildings, of course, in a typical urban environment and in particular, in Dealey Plaza, and so there are diffracted and reflected sound paths coming in, as I have illustrated with a simple "U" here from other directions. They will occur at later times because they come from buildings that are further away and they will be scattered out in time.

A cursory examination shows we would expect echo patterns that would persist for about 1 second. In that period of time there would be on the order of 10 or 12 reflected, diffracted and scattered paths having significant amplitude, namely, amplitudes above some threshold below which exists only noise.

Mr. CORNWELL. If I understand correctly then, the sound would travel at the same rate of speed after it hit any of those surfaces no matter whether it was reflected or scattered or whatever, and therefore the spacing of the marks on a time scale would be determined strictly by the distances that the sound had to travel from its source to the microphone or ear, is that correct?

Dr. BARGER. That is correct.

Mr. CORNWELL. In your hypothetical urban environment that you show there on JFK exhibit F-334, how many different points of sound source, or different locations for a point of sound source, and how many different locations for a microphone, might you expect to produce the exact same spacing of the points on the time scale and amplitude at those points?

Dr. BARGER. It is clear that moving the position of this microphone in any direction will alter the relative length of the sound paths and therefore alter the spacing between them. If there are enough different reflectors and scatterers, then the pattern achieved at any particular point is unique and would not be replicated at any other point.

Mr. CORNWELL. If we had a time scale such as shown at the bottom, you would expect that to be produced from a sound only in one place in the environment and at a point where the microphone or receiving ear was located at only one point?

Dr. BARGER. That is correct. In the absence of noise, if you could measure this pattern precisely it would uniquely fix the position of the microphone.

Mr. CORNWELL. Now, you told us earlier that when you received the tape recording here in question you listened to it and it had a large amount of noise or static in it, is that correct?

Dr. BARGER. That is correct.

Mr. CORNWELL. What did you do after initially listening to this recording?

Dr. BARGER. Initially we listened to the whole tape and we found at one point on the tape a 5½-minute segment in which the sound of a motorcycle engine and other noises were heard continuously. This particular 5½-minute segment was the period of the stuck microphone button that Professor Blakey described earlier.

The sound in that 5½-minutes was mostly motorcycle noise. However, there was a period half-way through it, approximately, where the motorcycle noise diminished. That is a brief description of what we heard.

Now, as I said, we realized from the outset that we were seeking to detect sub-audible events, or at least not audibly recognizable events, and this is helped by looking at the electrical waveform that represents the sounds in a form called a waveform chart. So the first thing we did was to digitize the sounds in this 5½-minute tape recording to form a computer file of the information contained by that digitalization, and then plot out a chart showing the waveform on the tape. This process was conducted by Dr. Wolf at BBN and it generated about 234 linear feet of waveform.

Mr. CORNWELL. I now show you JFK exhibit F-335 and ask you if you can tell us what that is?

Dr. BARGER YES. That is about ten feet of the 234 feet of waveform.

Mr. CORNWELL. I would like at this time, Mr. Chairman, to ask that that exhibit be admitted into evidence.

Chairman STOKES. Without objection, it may be entered into the record.

Waveform Recorded from Channel 1 Transmitter with Spot Microphone.

Mr. CORNWELL. What, if anything, did you learn from the production of this type of chart and your analysis of it?

Dr. BARGER. This exhibit shows the waveform of the sounds on the tape displayed at 50 inches per second starting 130 seconds after the onset of the stuck microphone button and extending to the time of 141.6 seconds.

Of course, it is difficult to see here without a telephoto lens but I will describe it to you. This continuation of rather constant level noise is typical of what preceded this segment for about 2 minutes. It is motorcycle noise. At this time, about 132 seconds after the microphone button became stuck, it is clear that the amplitude of that noise is diminishing. Shortly after that time, a series of impulsive events are seen in the tape. We concluded that it is possible that some of these impulsive events are in fact what an echo pattern would look like as transmitted through the radio in question.

Mr. CORNWELL. In addition to the motorcycle noise, did you find on your graph other types of noise or static, something like that?

Dr. BARGER. Yes. I just mentioned briefly that in addition to this continuum of noise which sounds like and apparently is motorcycle noise, there are sharp impulsive events of this type. They occur from time to time. Many of these have become understood by us to be impulsive events caused by other radios when they key in and attempt to transmit on this radio channel as well.

Mr. CORNWELL. After 15 years in what condition was the tape? Did that possibly have any effect on the level of noise that you found?

Dr. BARGER. The possibility that some of this noise was caused by the tape recording process is clearly a real one. The noises generated by the motorcycle are so intense that the noises generated by the recording process are relatively less. Therefore that is not the principal source of disturbance.

Mr. CORNWELL. After reviewing the output in this form, what did you do next?

Dr. BARGER. We realized that we could see impulsive events occurring at times after the motorcycle noise diminished of its own accord. We have then to determine whether such impulsive events might also be present in the tape recording at earlier times before the motorcycle in fact quieted down. We decided the best way to do that, as I mentioned briefly before, was to filter this tape recording through an adaptive filter that would, as I described it, learn about the motorcycle noise, project slightly ahead, and subtract it out.

Mr. CORNWELL. There might be members of the committee who are familiar with some types of filters, but the particular type that you needed for this process, was it available in 1963?

Dr. BARGER. No.

Mr. CORNWELL. When, approximately, would it have been developed, if you know?

Dr. BARGER. I am not exactly sure. The type of adaptive filter we used is called a Widrow adaptive filter. We used the least means squares logarithm to compute the filter weights. I don't believe that process was described in the literature until 1968 or so.

Mr. CORNWELL. I would like to show you JFK exhibits F-336A and F-336B. Would you tell us what those are, please?

Dr. BARGER. These are about 18 feet of the waveforms that were obtained by filtering the motorcycle tape through the adaptive filter. The beginning time of this segment is 130 seconds after the onset of the stuck button, as was the previous exhibit. In this case, the terminating time is 150 seconds.

Mr. CORNWELL. I would ask at this point, Mr. Chairman, that JFK exhibits F-336A and B be admitted into evidence.

Chairman STOKES. Without objection, they may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-336A



JFK EXHIBIT F-336B

Mr. CORNWELL. Did you learn anything new from reviewing the data in this filtered form?

Dr. BARGER. Yes, we did, but these waveforms are sufficiently indistinct to you that you wouldn't be able to tell it from where you are sitting.

The amplitude of the noise in the portions of the record where the motorcycle was heard most loudly have been reduced relative to the amplitude of the signals in the period where the motorcycle noise had previously and is still quiet.

It, therefore, enabled us to examine those portions of the tape that were recorded when the motorcycle was running faster and during which time the noise of the motorcycle was perhaps obscuring any impulsive sounds that might in fact appear to be echo patterns.

Mr. CORNWELL. What, if any, technique did you apply to learn more about the data after receiving it in this filtered form?

Dr. BARGER. After examining the 234 feet of filtered waveforms we discovered there were no other impulsive events on the tape that had been masked by the motorcycle noise, with one exception. That impulsive series of events came near the end of the 5-minute segment and was very unlike the series of impulsive events that we see before us here, at times around 130 seconds after the stuck button.

Mr. CORNWELL. What, specifically, did you do to determine what the nature of the impulsive events were?

Dr. BARGER. At this stage we conducted a series of tests which we call screening tests, to determine whether those impulsive events might be ruled out as gunfire. I might add before we did that we did attempt some different analyses beyond those that I have described so far, that would help us understand the nature of the impulsive events that we did in fact perceive.

The first of those analyses, in fact, was a calculation of the spectrographic analysis of some of the transient events.

Mr. CORNWELL. I would like to show you JFK exhibit F-356 and ask you, Would it be possible for you to use that exhibit to illustrate the analysis, the spectrographic analysis you just mentioned?

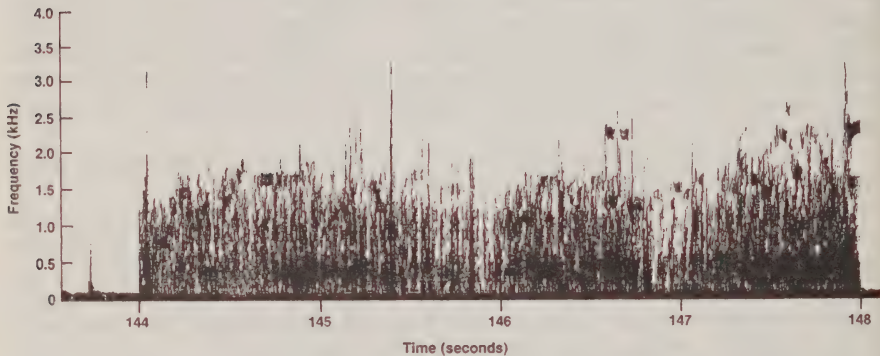
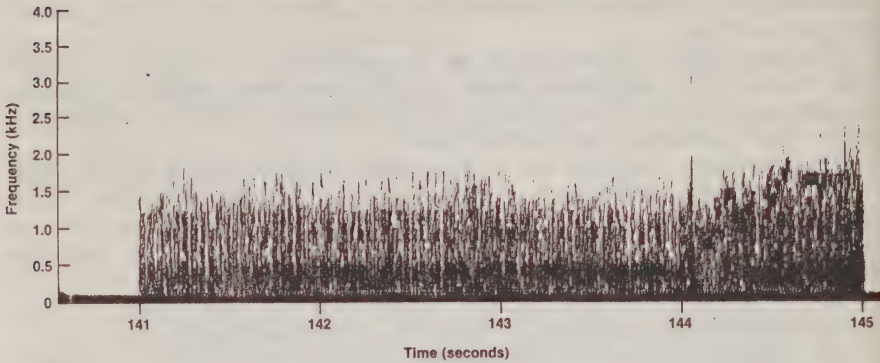
Dr. BARGER. Yes. This exhibit is made up of two spectrographs of two segments of the tape recording that help explain the presence of some of the impulses on the tape.

Mr. CORNWELL. May we have JFK exhibit F-356 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection it may be entered at this point.

[The information follows:]

Spectrograms from Waveforms Recorded from Channel 1 Transmitter with Stuck Microphone



JFK EXHIBIT F-356

Dr. BARGER. There were a series of impulsive events on the tape that were particularly numerous at times about 145 seconds to 150 seconds. These are shown in a spectrogram as follows:

The time on the spectrogram is marked on the horizontal scale in seconds.

The frequency of the energy in the sounds on the tape at each time is marked on the vertical scale in kilohertz. At this point, half a kilohertz, is the frequency approximately equal to the pitch of middle C on a piano. The height of these spikes—the distance the spike reaches upward in this coordinate indicates how sharp it is, how much high frequency content it contains, but that is about all.

The interesting thing shown are these horizontal dark bands. The horizontal dark bands are the sounds made visible in the spectrogram that are caused by the heterodyning between two radio transmitters. The radio transmitter with the stuck microphone is transmitting for sure. There are other radios that transmit on the channel, which puts their carrier frequency onto the air as well.

The carrier frequencies of the two radios are not exactly the same. They beat between each other and generate what is called a heterodyne tone, a beep. The indication of that beep, which would

be determined by where it was positioned in the vertical dimension of the spectrogram, is dependent on the exact radio in question and what its carrier frequency really is.

We see there are heterodyne tones with this pitch, this pitch and this pitch, and even with this pitch. That indicates that during this time there were at least four other radios that were briefly trying to transmit by pressing their talk buttons.

When they realized the channel was still in use, they let it up. So the time between when they push the button, which generates a transient, until the time they let up the button, which also generates a transient, there is a heterodyne tone observable in the spectrogram. These tones were subaudible on the tape so the spectrogram revealed their presence. Whenever there were a pair of impulses with a heterodyne tone between them, we knew those impulses were generated by another transmitter and should be eliminated from consideration as possible members of an echo pattern.

Mr. CORNWELL. In addition to the spectrographic analysis you have just described were there any other techniques that you utilized in order to determine whether or not the impulses on the tape were in fact associated or might be associated with gunfire.

Dr. BARGER. Yes, there was one in particular. We wanted to demonstrate there were audible acoustical sounds on the tape. The sound of a bell toll at 152 seconds from the time of the stuck button was vaguely evident. We wished to analyze that segment of the tape with an energy spectrum.

Mr. CORNWELL. I show you JFK exhibit F-355 and ask you to tell us what that is.

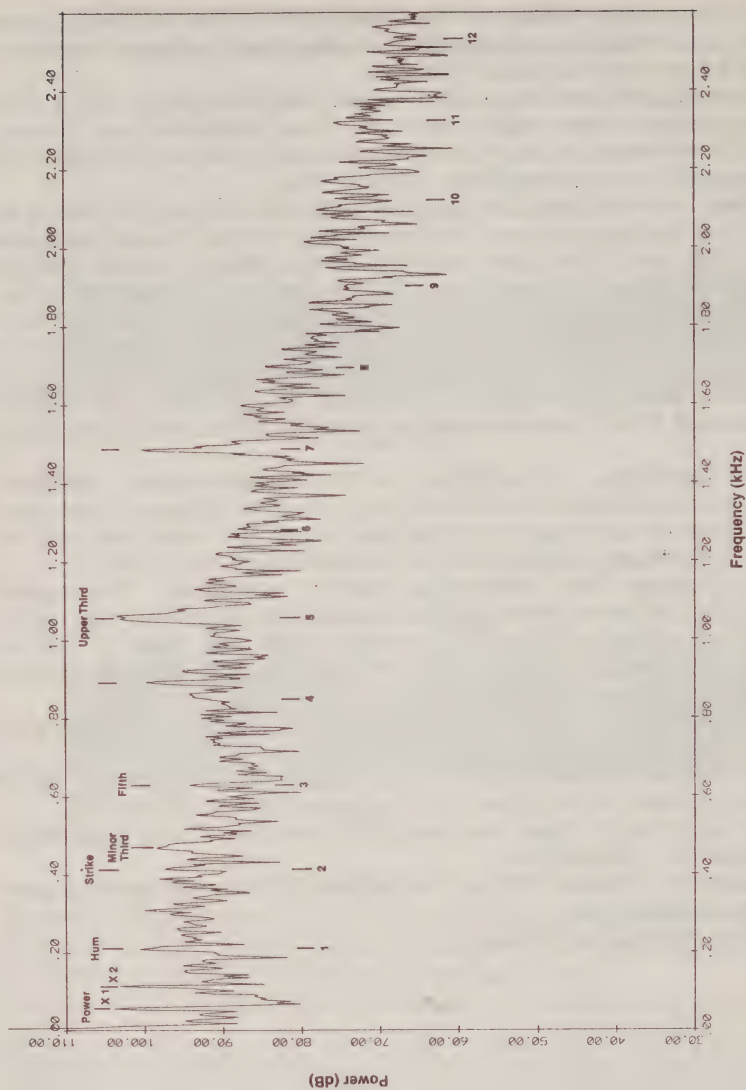
Dr. BARGER. This is what I just described. The energy spectrum of the segment of the tape that contains the toll of the bell.

Mr. CORNWELL. May we have JFK exhibit F-355 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]

Energy Spectrum of Tape Segment Containing the Sound of a Bell.



Dr. BARGER. In this exhibit the frequency of each component of sound is plotted on the horizontal scale and the loudness of that component is plotted on the vertical scale, again in decibels.

The nature of an energy spectrum, if you have nothing in the record except noise, is a rather jiggly line, sometimes described as a hairy line, that is rather gently undulating in the frequency domain.

However, if there are periodic components in the sound, such as generated by a bell or an overtone of a bell, they will generate a spike in the spectrum such as these spikes that are clearly visible in this exhibit. In fact, there is a harmonic series of periodic events that are visible in this record and we have labeled them with the number 1 to represent the fundamental, and the numbers 2, 3, 4, 5, 6, to represent the harmonic overtones.

This particular spectrum, which was calculated by Mr. Schmidt, has been done over a third of a second of the tape that was identified by the audible, but barely audible, sound of this bell.

Now, there is a very interesting feature in this spectrum and that is in particular this particular peak. The reason this is of significance is as follows: It is characteristic of the design and manufacture of carillon bells that they contain a harmonic series such as I have numbered here.

The fundamental frequency is in the description of carillon sounds called the hum note. The second harmonic is called the strike note and that is the note to which the bell is tuned.

In this case that is 440 hertz, which is A below middle C.

The strike note characteristically has a minor third above it and this peak in the spectrum is at the right frequency ratio to the strike tone to be the minor third of a carillon bell. They typically have a fifth and an upper third above them and both of those overtones are clearly evident in the spectrum of this bell. It is not at all unlikely that a strong seventh overtone of the hum note would appear. This, therefore, is a very clear indication that the bell is a large carillon bell. The sound of it would reach this tape recording only through an acoustical path.

Mr. CORNWELL. So somewhat similar to the spectrographic analysis technique, by applying the energy spectrum analysis you were again able to identify transients or short peaks in the data which were not associated with gunfire?

Dr. BARGER. That is correct.

Mr. CORNWELL. At this point then you had filtered the tape and you had eliminated both background noise, such as the motorcycle, and a number of other transients using the techniques you just described, what conclusions were you able to draw at this point from your analysis?

Dr. BARGER. We concluded there were sounds of acoustical origin on the tape, giving us confidence that the acoustical part of the otherwise partially malfunctioning transmitter was working.

We found that there are impulses on the tape that are unique to the segment following 130 seconds from the onset of the stuck button and a cursory examination of those impulses indicated that we could not rule out the possibility that they were in fact echo patterns.

Mr. CORNWELL. What did you do next?

Dr. BARGER. Well, it seemed prudent to do something more than a cursory examination of the echo patterns so we devised six screening tests to determine if they might in fact be the sounds of gunfire. If the echo patterns passed these six screening tests we would proceed to the filter detector which I described before as the most powerful test we could perform.

The first screening test was: Did the impulsive patterns on the tape occur at the time of the assassination? The second screening test was, simply: Were these patterns that occurred at this time in the data unique throughout the 5.5-minute segment? In other words, could they be shown to have occurred only once?

Third, we asked, did the span of time occupied by the impulse patterns cover at least 5 seconds? Because if they had not, they could not possibly represent the entire span of the gunfire as given by analysis of the Zapruder film.

Fourth, we asked, do the shape of the impulses on this tape recording resemble the shape of impulses of gunfire transmitted through that type of radio? They certainly didn't resemble the wave forms of gunfire I showed in the first exhibit, as the radio would be expected to distort them. Would it have distorted them in the way that they appear on the tape?

The fifth screening test was: Does the narrow range of observed amplitudes of the impulses on the tape correspond to the expected range of amplitudes for the wide range of echo amplitudes as compressed upon transmission through the radio?

The sixth one was: Do the number of impulses that we would expect in an echo pattern in Dealey Plaza approximate the number of impulses that are seen in the tape to occur at this time? Those six questions were asked and they received an affirmative answer.

Mr. CORNWELL. Let me ask you—I believe your explanation perhaps was clear that you wanted to find out if they occurred at the right time of day; if they were unique, in other words, if they were not so thoroughly scattered throughout the data that they were the cause of something else; that their shape was appropriate; that they had the right amplitude or height after the compression of the radio; and that there was approximately the right number of impulses. But you also stated—I believe your third item was that the time span had to be at least 5 seconds.

Do I understand—you made reference to the Zapruder film—is that simply a matter of looking at the head shot at 313, or 312, and going back into the film at which point I suppose everyone would agree that the participants, the President and Governor Connally, are clearly reacting, and saying that there was at least a minimum period of time of 5 seconds that the shots had to cover. Is that accurate?

Dr. BARGER. That is accurate.

Mr. CORNWELL. So no matter what else might ultimately be found out about the number of shots, or the timing, or sequencing, or anything else, you at that point were looking to see if it at least covered a 5-second span?

Dr. BARGER. That is correct.

Mr. CORNWELL. Then, let's go to the first test and show you JFK exhibit F-366 and ask you if you can tell us what that is?

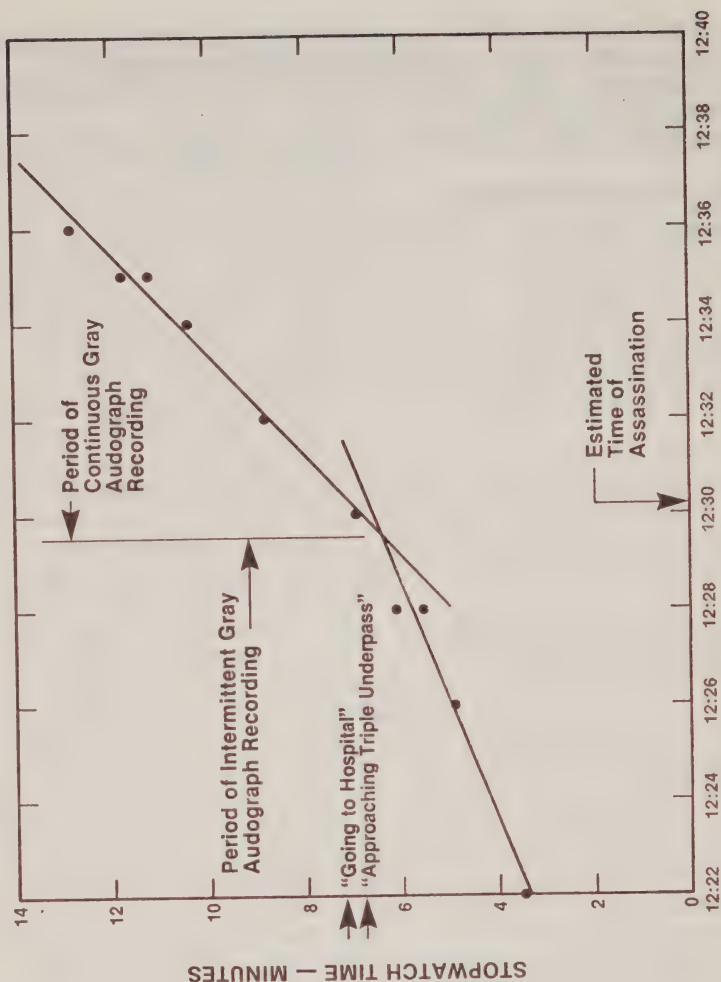
Dr. BARGER. Yes. This is an illustration of how we attempted to achieve our best estimate of the time of the assassination.

Mr. CORNWELL. May we have JFK exhibit F-366 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, it may be entered at this point.

[The information follows:]

Least-Squares Fits to Channel 2 Dispatcher's Time Annotations Showing Times of DPD Chief's Radio Transmissions.



CHANNEL 2 TIME ANNOTATIONS

Dr. BARGER. The data depicted in this exhibit were obtained by listening to channel 2 of the Dallas Police Dispatcher System. Channel 2 was in use on that day and at that time by, among others, the chief of police, who was in the lead car just ahead of the President.

Channel 2, like channel 1, was recorded; the sounds that were carried over channel 2, like 1, were recorded. They were recorded on a Gray Audograph which unfortunately records intermittently. When a radio is broadcasting a signal, the recorder turns on and records the sounds. When no one is recording, the recorder stops. This saves recording space.

As a result of that feature, we, in the laboratory, while listening to that tape recording, with a stopwatch, timed the annotations that the dispatcher read out from reading his clock. These times are plotted on the horizontal scale, each time he gave an annotation.

For example, if he said 12:28 and our stopwatch read 5.5 minutes we would put a dot there.

If he then said 12:28 a half minute later, which was not uncommon—in other words, he would only annotate the tape to the nearest whole minute—we would then note the time that that was heard and plot that point.

Now we have then obtained the stopwatch time, or we might say the laboratory time, plotted against the clock time that the Dallas police dispatcher on channel 2 had at that time, and the data follows this bent line.

When one has data of this sort one draws a straight line through them by a mathematical procedure called the least squares fit. This straight line that you have drawn becomes your best estimate of the time correspondence between your watch in the laboratory and between the channel 2 dispatcher's clock at the Dallas Police Department.

At times prior to 12:30 the best estimate by the least squares procedure of the correspondence between laboratory time and Dallas police channel 2 time is a line that has a slope less than one. This indicates that on the average the recorder used to record the dispatcher's voice was running very slowly. The reason that perception is given is that it was actually off part of the time when no one was speaking. However, at about 12:30 the voice traffic increased so much on channel 2 that the recorder operated then continuously and thereafter our estimated correspondence between laboratory time as measured on the stopwatch and Dallas dispatcher 2 time has the slope of one. That means the recorder is on all the time.

Well, that is not tremendous information. However, the purpose for doing this was to note with the stopwatch that at this time, as we listened to the tape, we hear the chief of police say, "We are approaching the triple underpass." And 19 seconds later on the stopwatch we heard him saying, "We are going to the hospital."

It has been recorded that the chief of police heard the shots and he has testified that he had heard them. It is unlikely that he would give a routine position report after having heard them, so it can be presumed or we should presume that the assassination

occurred sometime between those two voice transmissions by the police chief.

If one then goes over horizontally from that time estimate to our estimated correspondence of channel 2 time to stopwatch time we have our best estimate for the time of assassination, which is 12 seconds past 12:30.

Mr. CORNWELL. I now show you JFK exhibit F-365 and ask if you can identify that.

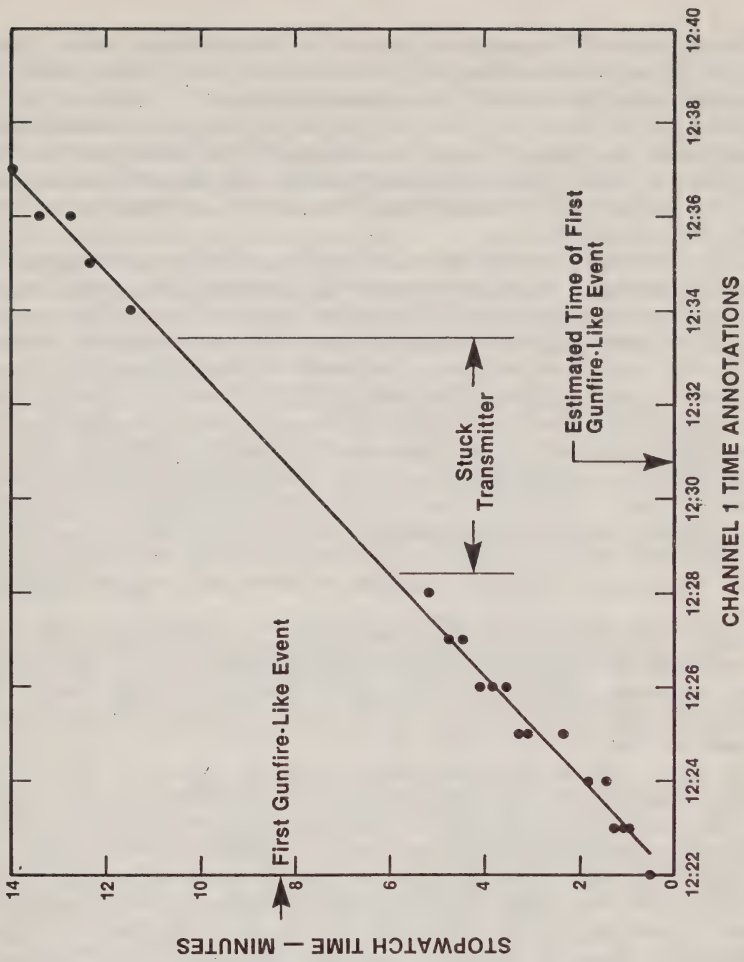
Dr. BARGER. This is the same kind of activity but conducted when listening to the sounds on the channel 1 tape.

Mr. CORNWELL. May we have JFK exhibit F-365 admitted into evidence, Mr. Chairman.

Chairman STOKES. Without objection, it may be entered into the record.

[The information follows:]

Least-Squares Fit to Channel 1 Dispatcher's Time Annotations Showing Time of First Set of Gunfire-Like Events.



Dr. BARGER. The purpose here is to determine at what time the impulsive sounds on channel 1 occurred to see if they were at the same time as the time of the assassination.

Here is the time read on the stopwatch that is observed by the dispatcher on channel 1 in the Dallas Police Department, which is a different clock than that observed by the dispatcher on channel 2. This is channel 1 dispatcher time; this is laboratory time measured with a stopwatch.

This dispatcher was more talkative and the time annotations that he gave are more numerous—for example, he gave three time annotations at the time 12:26 and so we have more data here upon which to base a time estimate, using the least squares technique.

The straight line indicates the result of that time estimate.

There is nothing audible during this 5½-minute period because mostly all you hear is motorcycle noise and so the channel 1 dispatcher made no time annotations there. However, before and after he did—and that gave us the possibility of forming the estimate for how his clock read them. We measured on the tape the time of the first impulsive sequence that we think may possibly be gunfire and we come over to our time estimate and down and find that we estimate the first impulse to have occurred at 12:30 and 47 seconds.

Now, the estimate for the time of the first impulse then is about 35 seconds after the estimate of the assassination. If both dispatchers had been looking at the same clock, I would have had to conclude that the impulses on the tape would not pass this first screening test.

In other words, the impulses occurred too late. On the other hand, each dispatcher was looking at a different clock. I have read in testimony in the Warren Commission report that the two clocks are not synchronized except once a month at the first of the month. This was the 22d. The two clocks were subsequently found by the FBI to be 1 minute off, so the variation in the times that we have discovered here is within the known accuracy of the two clocks. We have to conclude that the possibility that the impulses represent gunfire passed the first screening test; namely, that they apparently occurred at the time of the assassination.

Mr. CORNWELL. So I take it then that the question of whether the impulses occur at approximately the time the shots were fired has been answered in the affirmative using a comparison of both channel 1 and channel 2.

Dr. BARGER. That is right.

Mr. CORNWELL. You have referred, of course, throughout your testimony to the fact that it was a motorcycle which you believe had its button stuck and that, of course, according to the last exhibit and your previous testimony was a thing that caused the 5-minute gap or a continual transmission from the stuck button on channel 1. Is channel 1, however, the channel on which you would expect to find that type of motorcycle transmission?

Dr. BARGER. Channel 1 was the normal channel in use in Dallas. Channel 2 is used for special occasions such as the motorcade. In fact, the chief of police was speaking to the motorcycles at the head of the motorcade on channel 2. Some of those motorcycles near the limousine were known to have been switched to channel 2.

On the other hand, listening to the voice communications on channel 2 at times before and after 12:30, I discovered the presence of the call numbers of several motorcycle policemen in the motorcade that were on channel 1.

Mr. CORNWELL. Moving next to the second screening test that you mentioned, namely, whether the impulses were unique, I would like to ask you if you would describe what you did to determine the answer to that question.

Dr. BARGER. Yes. We examined the full 234 linear feet of the waveform representing the output of the channel 1 recording when the button was stuck to see if there were any other impulsive patterns that occurred that were similar to these that we are looking at on channel 1.

We found that there was one other sequence of impulsive events. It was dissimilar from the one we have looked at principally in that its timespan was less than 5 seconds. It occurred about a minute later than the period of impulses in question. We found no other impulsive patterns on the tape.

Mr. CORNWELL. So the answer to the second question is again in the affirmative?

Dr. BARGER. Yes.

Mr. CORNWELL. Going into test No. 3, which was the question of whether there was a timespan of at least 5 seconds, I would like to direct your attention to JFK exhibits F-336A and B.

These are exhibits that have already been admitted into evidence. Could you use them to illustrate your analysis with respect to the third test?

Dr. BARGER. The impulsive events that we felt hypothetically might represent echo patterns began at approximately 137 seconds after the stuck button commences and continue through this portion at about 147 seconds. This period of impulses, this period, this period, and this period, represent four typical segments of the tape. The span between them is 10 seconds and that is more than 5.

Mr. CORNWELL. Now, with respect to test 4, that the impulses were of approximately the correct shape, how did you go about resolving that question?

Dr. BARGER. In this case we were familiar with the shape of transient waveforms generated by rifle fire and those were shown in the second exhibit. However, we saw that those waveforms did not appear in the tape that we were analyzing.

We knew, however, that the loudness of the impulses from gunfire so near—well, anywhere in Dealey Plaza—would be so loud as to overload the radio, to exceed its capacity to transmit without distortion of the waveforms in question.

In order to test whether the Dallas radio distorted the gunfire impulses in the way, or in the approximate way, that we see in these records, Mr. Robinson found a similar Motorola FM radio in use with the MDC Police in Massachusetts. He was able to test that radio by playing sounds of the Mannlicher-Carcano rifle, as tape recorded, electrically into its microphone connection, through an electronic circuit that mimicked the electroacoustical behavior of the microphone. He then went back to the receiver at the police station and made a recording of the distorted sounds that were in

fact transmitted. The next exhibit illustrates those distorted waveforms he measured.

Mr. CORNWELL. I show you JFK exhibit F-368. As you just noted, that is an exhibit which would help you illustrate the techniques you have just described, is that correct?

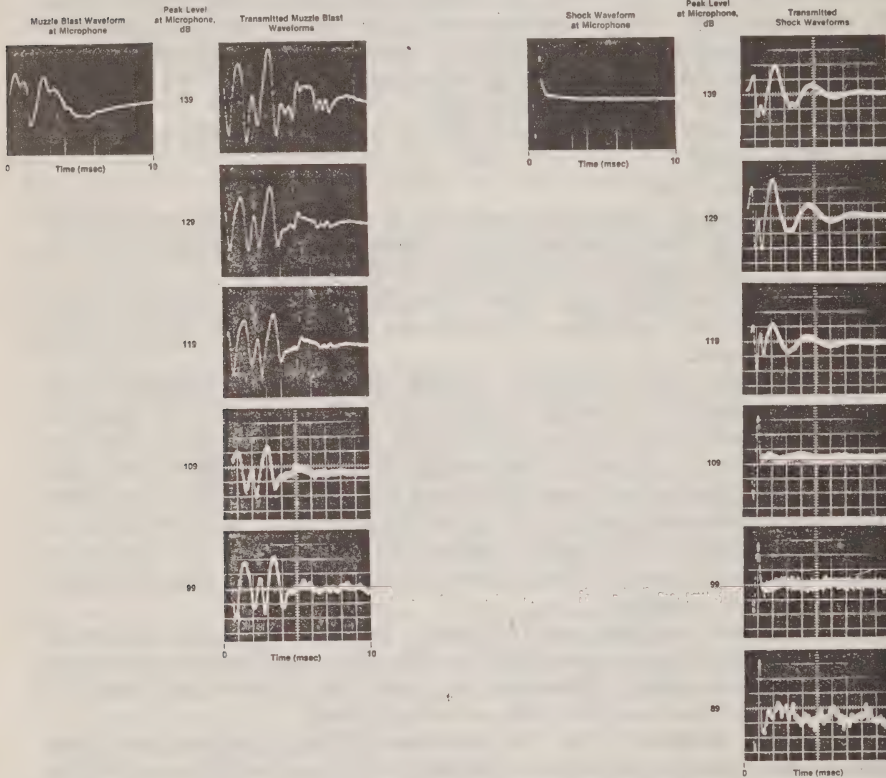
Dr. BARGER. I anticipate that that will be the one.

Mr. CORNWELL. May we have JFK exhibit F-368 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, it may be entered into evidence at this point.

[The information follows:]

**Muzzle Blast and Shock Waveforms Transmitted
by a Police Radio Similar to the One Used by DPD Motorcycles for Several Different Loudnesses.**



JFK EXHIBIT F-368

Dr. BARGER. This illustration shows on the left side waveforms due to muzzle blasts and on the right side waveforms generated by shock waves from the Mannlicher rifle.

In this photograph we see the waveform of a muzzle blast that was measured, with a good microphone, from a Mannlicher-Carcano. The amplitude of the muzzle blast is shown in time covering a total span on this illustration of 10 milliseconds.

In this case we have the waveform, which is that sharp N shaped waveform shown that was measured from the shock wave of a bullet from a Mannlicher-Carcano, also on a scale covering 10 milliseconds.

In this column we show the waveform transmitted by the radio to the receiver and subsequently analyzed at the receiver, as a function of the level of the loudness of the muzzle blast that was played into the radio; 139 decibels, very loud, 129, half as loud in terms of human response, 119, half again as loud, 109, half again as loud, 99, half again as loud.

We see that the relatively simple shape of the muzzle blast waveform is made more confused by the radio. It oscillates more; it lasts longer in time and its shape in fact depends on how loud it was. The radio therefore was performing nonlinear distortion and compression on these waveforms at the levels indicated.

Here the N wave coming in at 139 decibel level has a nice pristine N shaped waveform and comes out of the radio as a lower frequency oscillation. That is true even at a 10-decibel lower level, et cetera. But when you get down 30 decibels lower than this one, the radio now is capable of transmitting that waveform in an undistorted form.

Mr. CORNWELL. So we can see the basic distortion at different decibel levels.

Do I understand that the various decibel levels are shown because they would correspond perhaps to different distances that the blast might be from a receiver such as a microphone?

Dr. BARGER. We have observed that the loudness of the muzzle blast waveforms during the test reconstruction in Dallas measured at the microphones closest to the rifle were 135 decibels, virtually the same as the loudest here. The loudest sounds measured at the most distant receivers were about 20 decibels lower than that, so the range of the loudest sounds is easily covered in this investigation.

It shows that one cannot hope to identify, for example, the type of rifle fired by looking at the waveform; because the waveform that is characteristic of the rifle is severely distorted by the radio because it is too loud for the radio.

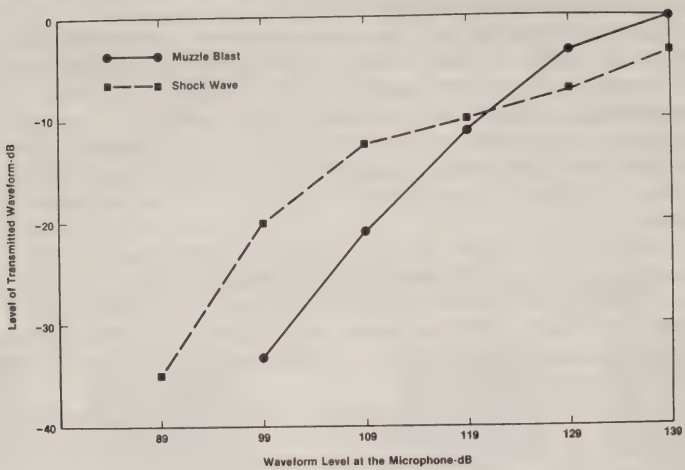
Mr. CORNWELL. I now would show you JFK exhibit F-369 and ask you if you can tell us what that is?

Dr. BARGER. This is a graph that quantifies, better for people who think in terms of graphs, the capacity of this radio not to accept and transmit loud sounds as efficiently as it transmits weak ones.

Mr. CORNWELL. Mr. Chairman, may we have JFK exhibit F-369 entered into the record?

Chairman STOKES. Without objection, it may be entered at this point.

Level of Transmitted Waveforms as a
Function of Waveform Level at the Microphone.



JFK EXHIBIT F-369

Dr. BARGER. Down here in decibels on this scale, increasing to the right, are the loudness of sounds introduced into the microphone. On this scale reading upwards are increasing loudnesses of sounds that are transmitted by the radio. These lines up in the region of loud sounds, where I said the levels of sounds in Dealey Plaza were, 109-139 decibels, are quite flat.

In other words, if the loudness of the signals that were actually heard in Dealey Plaza were 30 decibels in range from the loudest to the softest, then, the loudness of the sound transmitted by the radio would only differ by 10 decibels. This is described as amplitude limitation. It would indicate that all of the loud and even the softer echos in the echo patterns at Dealey Plaza would have about the same loudness on the tape that was made after transmission through the radio. It was necessary to see if the radio caused this limitation, because this removes the subjective impression of gunfire from listening to these compressed sounds.

Mr. CORNWELL. Perhaps you could be seated at this point. I will ask you finally with respect to the final screening test No. 6, concerning the question of whether or not the number of impulses roughly corresponded, what did you do to answer that question?

Dr. BARGER. We took a map of Dealey Plaza and calculated a rough approximation, using the mathematics of reflected, diffracted, and scattered sounds, the number of echoes that we thought would be loud enough to be audible over the noise of a motorcycle. We found there would be about 10 for a typical microphone location. Then we counted the number of impulses in each pattern of impulses that we see in the waveform records of the tape and we saw there were about 10. We realized there was still a possibility that these impulsive sounds that we saw in the record of the tape were in fact caused by gunfire.

Mr. CORNWELL. At this point then you had devised six screening tests, any one of which I take it might have been sufficient to rule

ut these impulses as being gunshots, and they in fact passed all ix tests, is that correct?

Dr. BARGER. Quite so.

Mr. CORNWELL. Now, at this point did you have any conclusions r, on the other hand, did you feel that further testing was required?

Dr. BARGER. At this point we felt we were justified in suggesting o the committee that a matched filter detection trial was warranted on the tape. As I said, the patterns that formed the basis for the match would have to be obtained by an acoustical reconstruction. The reason for suggesting the matched filter procedure for detecting the events was it is the most powerful method we know of with which to do that.

Mr. CORNWELL. How about telling us in just plain, common language what you are referring to when you say an acoustical reconstruction?

Dr. BARGER. The objective is to obtain echo patterns of the sort hat I described briefly before, and the purpose for having these patterns is to become the basis of the match in the matched filter etector. In order to get these echo patterns, it was necessary to esign a test that would get echo patterns that would in fact match with the events on the tape if in fact there were events on the tape hat were gunfire.

Mr. CORNWELL. In other words, you suggested to the committee hey go back to Dealey Plaza and fire a rifle there so you could ecord it and see exactly what it looked like in that urban environment?

Dr. BARGER. That is correct.

Mr. CORNWELL. Before doing so, did you seek any independent opinion or consultation on this recommendation that you had made o the committee?

Dr. BARGER. Yes, we did. I think the committee felt that it would e wise for them to obtain a second opinion on the wisdom of onducting this test, and in order to do that they obtained the greement of professors Mark Weiss and Ernest Aschkenasy of ueens College to look at the results of our six screening tests that just described and to look at our preliminary design for this echo attern test or acoustical reconstruction and to form an opinion out whether they agreed with us that it was a reasonable and ecessary thing to do.

Mr. CORNWELL. For the record, Mr. Chairman, Prof. Mark Weiss, hom Dr. Barger has just referred to, received a bachelor of eelical engineering degree from the City College of New York in 1952, and an M.S. in electrical engineering from Columbia in 1957. e has been a staff engineer at the Columbia University Electronics Research Laboratories and a project engineer and vice president r Acoustics Research at the Federal Scientific Corp. Currently, he r professor of computer science at the Queens College in the City niversity of New York. Mr. Weiss has written numerous scientific icles and technical reports. He is a fellow of the Acoustical ociety of America and a member of the Institute of Electrical and lectronics Engineering. Mr. Weiss served on a panel of experts ointed to examine the Nixon-Watergate tape recordings during e grand jury investigation.

The other individual Dr. Barger just referred to, Ernest Aschkenasy, received a bachelor of electrical engineering degree in 1967 and a master of electrical engineering degree in 1972, both from the City College of New York. He has been involved in the analysis and enhancement of acoustic signals for over 10 years and was an associate professor with Professor Weiss in the examination of the White House tape recording in 1974. He is currently a senior research associate in the Department of Computer Science of Queens College.

Did Professor Weiss and Mr. Aschkenasy agree that testing in Dealey Plaza was a necessary and proper thing to do?

Dr. BARGER. Yes.

Mr. CORNWELL. After consultation with the authorities of Dallas, Tex., the committee, of course, ultimately agreed that you should conduct the testing. What problems did you focus upon at this point in time that you would face in designing and conducting a valid test?

Dr. BARGER. If I may just make a comment before I answer that question, I remember something I was going to say before, that I forgot.

In fact, I did not supervise the Judge Sirica panel that examined the tape recordings that President Nixon had made. Dr. Richard Bolt, of B.B. & N., did that. I happened to have been director of one of the divisions of the company in which some of that work was done.

Now I remember your question, so I can answer it.

The first problem that had to be solved in designing the test was the fact that we didn't know where the motorcycle was, if, in fact, it was there at all. The second problem was, although we had evidence about the type of rifle used that was fired from the Texas School Book Depository, we had no evidence about the alleged weapon that might have been on the knoll. For example, we didn't even know whether it was a rifle or a pistol. The allegation didn't include that information.

We had to consider, also, where to put the targets at which to fire the bullets. As I have explained, the pattern of the N wave shed from the bullet is distinct, so the echo pattern at any one point depends upon the direction in which the rifle is pointing, as well as the place where it is fired from. So we need to decide where, in fact, to fire the bullets. There was evidence the bullets, of course, had hit the limousine, the occupants in the limousine. There was evidence that a bullet had struck the curb on Main Street, down by the triple underpass, and there are the other indications by the presence of the impulses in the tape that there may have been a shot fired up near the corner of Houston and Elm, so we used those results to place the targets.

The next problem we had to figure out was what ammunition to use; since the N waves are important. You have to have the muzzle velocity correct, and we needed to find ammunition that had a nearly similar muzzle velocity to that used by Oswald, or alleged to have been used by him.

We had to consider as a matter of practical significance the amount of time it would take to conduct the acoustical reconstruction. Requiring live ammunition as it did, of course people had to

be excluded from the area, and that can only be done for a short period of time. We had also to accommodate the listening tests that were conducted by Dr. Green, and which he will describe later.

Mr. CORNWELL. I would like to show you now JFK exhibit F-337. I would ask you if you could use that exhibit to illustrate how you solved some of the various problems in setting up the test you have just mentioned.

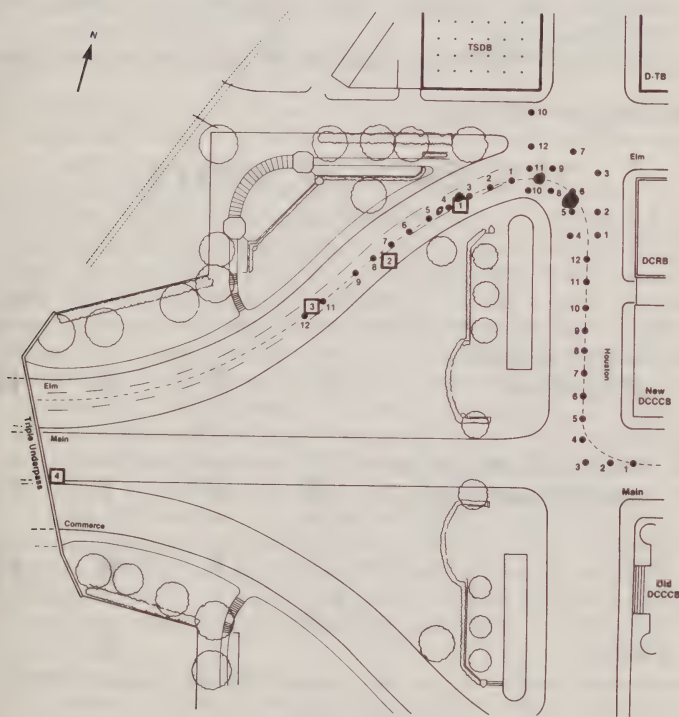
Dr. BARGER. Yes. This exhibit illustrates the positions of the microphones, the targets and everything else.

Mr. CORNWELL. Mr. Chairman, may we admit into evidence at this time JFK exhibit F-337?

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]

Microphone Locations at Dealey Plaza



JFK EXHIBIT F-337

Dr. BARGER. We positioned 12 microphones, as an array of microphones, in each of three positions: This group of 12; this group of 12; and this group of 12. The objective here was to cover all of the positions where the motorcycle may have been, and still expect to hear the sounds of gunfire in a dense enough way so that the echo patterns received on adjacent microphones would not be so different.

ent that no match could ever be achieved should the motorcycle have been halfway between two of them.

The target locations that we selected, based on the evidence that I cited earlier, were here, No. 4; here is Zapruder frame location 313, target 3 at this point; and target 1 there.

Rifles were fired from here [indicating the T.S.B.D.], as evidence indicates it was. A rifle and a pistol were fired from here [indicating the grassy knoll], as allegations have indicated there may have been.

Mr. CORNWELL. OK, when you say "from here and from here," simply for the record, you were pointing at that point to the Texas Schoolbook Depository as being where a rifle was fired from and the grassy knoll where both a pistol and a rifle were fired.

Dr. BARGER. That is correct.

Mr. CORNWELL. I would like to ask you now to look at JFK exhibit F-344 and tell us what this shows.

Dr. BARGER. This simply shows the sequence of shots executed for each microphone array position in turn.

Mr. CORNWELL. May we have JFK exhibit F-344 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, it may be entered into the evidence.

[The information follows:]

SEQUENCE OF SHOTS

Array 1

	No. 1	No. 2	No. 3	No. 4
TSBD (Muzzle in plane of window)	1	3	6	10
TSBD (Muzzle 2 feet inside plane of window)	2	4	7	11
Knoll (Rifle)		5	8	12
Knoll (Pistol)			9	

JFK EXHIBIT F-344

Dr. BARGER. Here are shown the four target locations. The first rifle position was in the depository, with the muzzle of the rifle in the plane of the window.

Here the rifle was in the same position, but the muzzle was withdrawn 2 feet from the plane of the window. This was done because we had no clear evidence about where the muzzle, in fact, was relative to the plane of the window, and that small difference makes a noticeable difference in the loudness of the muzzle blast perceived in the plaza.

The third location was from the knoll, firing with the rifle. The fourth was from the knoll firing with the pistol.

The shot numbers here indicate the sequence in which the shots were fired and the absence of any number in any place indicates there was no corresponding shot fired.

Mr. CORNWELL. Now, the numbers across the top where it says No. 1, No. 2, No. 3," what does those correspond to?

Dr. BARGER. These correspond to the numbers of the targets, 1, 2, 4, that were fired at.

Mr. CORNWELL. And the rifles which were used both from the window and from the grassy knoll were of what type?

Dr. BARGER. I am sorry; I missed that.

Mr. CORNWELL. The rifles which were used both from the Texas Schoolbook Depository and from the knoll were of what type?

Dr. BARGER. They were both of the Mannlicher Carcano type.

Mr. CORNWELL. And the pistol was of what type?

Dr. BARGER. It was a 38-caliber pistol, of what manufacture I don't remember.

Mr. CORNWELL. But the pistol would have been a subsonic weapon, is that correct?

Dr. BARGER. It was chosen to have a subsonic missile; that is correct.

Mr. CORNWELL. Then, if we were to read JFK exhibits F-344 and F-337 together, would it be accurate to state that the sequence of shots in each array was pursued in numerical sequence for each array of microphones indicated on the plot of the plaza.

Dr. BARGER. That is correct. The sequence indicated here was repeated three times in repetition, once for each array location and each time ammunition of Norma manufacture was fired. The shot sequence was then repeated a fourth time when our recording equipment was recording the microphones in the third position, with Western Cartridge Co. ammunition. This type of ammunition is of the same sort thought to have been used by Oswald.

Mr. CORNWELL. Why were the first 3 arrays of 12 shots—actual—11 shots with a rifle; 1 with a pistol—why were they fired with Norma ammunition instead of Western Cartridge Co.?

Dr. BARGER. I understand that the Western Cartridge Co. ammunition of this type is no longer manufactured and is hard to obtain, and the committee could only get enough to fire through the sequence once; so Norma was used the rest of the time.

Mr. CORNWELL. So at least the results could be compared to see if there was any substantial difference between Norma and Western Cartridge Co.

Dr. BARGER. That is correct.

Mr. CORNWELL. Now, I would like to direct your attention to JFK exhibits F-339, F-340, F-341, and F-342.

Dr. BARGER. These are photographs that were taken during the period when we were setting up the acoustical reconstruction in Dallas.

Mr. CORNWELL. May we have these four exhibits admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, they may be entered into evidence.

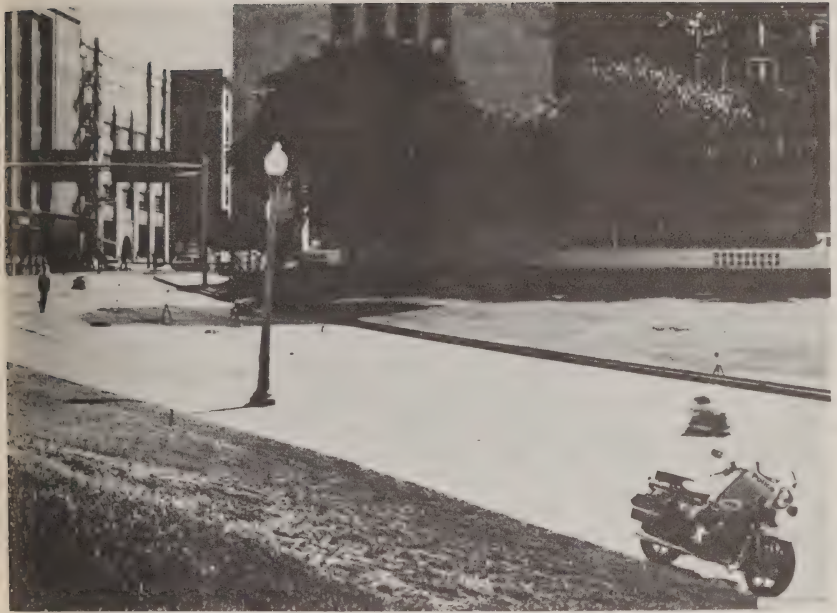
The information follows:]



JFK EXHIBIT F-339



JFK EXHIBIT F-340



JFK EXHIBIT F-341



JFK EXHIBIT F-342

Dr. BARGER. This one shows a portion of Houston Street, and all of Elm Street. The yellow x's on the street correspond to the position of the black dots on the previous exhibit and were where the microphones were placed. These sandbags that are observable here, barely observable here and there, are the first three of the

four targets. The total number of sandbags available was insufficient to set up a fourth target simultaneously, so this pile of sandbags was transported to that location periodically.

Mr. CORNWELL. So the sandbag targets 3 and 4 were moved back and forth, and you pointed to the place.

Dr. BARGER. That is right. This photograph simply shows a ground level view of the microphones used to record the sounds at array position 3, and the sandbags with sand leaking out of them. So the experiment was probably over by that time.

Here is a photograph from the knoll, looking up at the microphones in array position 3, and the sandbags. Here the marksman and his assistants are in the position where Oswald was thought to have fired.

Mr. CORNWELL. The very last exhibit you made reference to, of course, was taken on the sixth floor of the Texas Schoolbook Depository before the test began, is that correct?

Dr. BARGER. No; I am not sure when it was taken, but it was taken there.

Mr. CORNWELL. Let me ask you this. At least during the testing the windows were closed down to the way they were in photographs taken about the time of the assassination, is that correct?

Dr. BARGER. That is a question I can testify about. It was known from the photographic evidence that during the period of the assassination the windows in the sixth floor were down with the exception of this one through which Oswald is thought to have fired, and it was half-way down. It was important to the accuracy of the reconstruction that all those windows be in that position exactly during the shots, and they were. However, it was a hot day, and the people in this room opened the windows between shots to air themselves out.

Mr. CORNWELL. I now show you JFK exhibits F-358 and F-359.

Dr. BARGER. These appear to be aerial photographs of Dealey Plaza that would be quite recent, because they include several structures that were not there in 1963.

Mr. CORNWELL. May we have those admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, they may be entered into evidence.

[The information follows:]



JFK EXHIBIT F-358



JFK EXHIBIT F-359

Mr. CORNWELL. There is simply one part of those exhibits I would like to direct your attention to, Dr. Barger, and that is the very large new hotel structure which would appear somewhat to the south of the plaza. Would you tell us whether or not that, of course, was there the day that you did the testing?

Dr. BARGER. The echo patterns that we expected to receive and did, in fact, receive had a maximum time span of 1 second. There were other echoes that came in at later times that were very weak, so weak that they were not considered in any of the matches and could not have been represented on the DPD tape because they were so weak relative to the loud echoes.

So, the only echo patterns we ever needed or used were never longer than 1 second. The time required for sound to travel from the depository to that structure and back is a little more than 3 seconds. Since the interval between each test shot was much more than 3 seconds, the echoes from that remote structure had no effect on the matching process whatsoever.

Mr. CORNWELL. You then have indicated that the large structure was present on the day you did the testing. It would not have been present, I take it, in 1963, but, nevertheless, it was so far removed from the plaza, that it would not have affected in any manner the results of the test.

Dr. BARGER. That is correct. It did not. Its echo came in much later than any of the echoes on the echo patterns that we used.

Mr. CORNWELL. What did you obtain from the testing?

Dr. BARGER. As a result of the four sequences of 12-shot firings we had 432 different test shot recordings on magnetic tape.

Mr. CORNWELL. Were they of the quality that you had hoped? Did the equipment function properly, et cetera?

Dr. BARGER. We monitored the recorded signals at the time that they were recorded to see if they were noise free and to see if they used the entire dynamic range of the recording system. In other words, to see that they were being recorded with the highest fidelity possible. We observed for each of those records that we had achieved that. We did no other analysis of the records at that time.

Mr. CORNWELL. I would like to now show you JFK exhibit F-338.

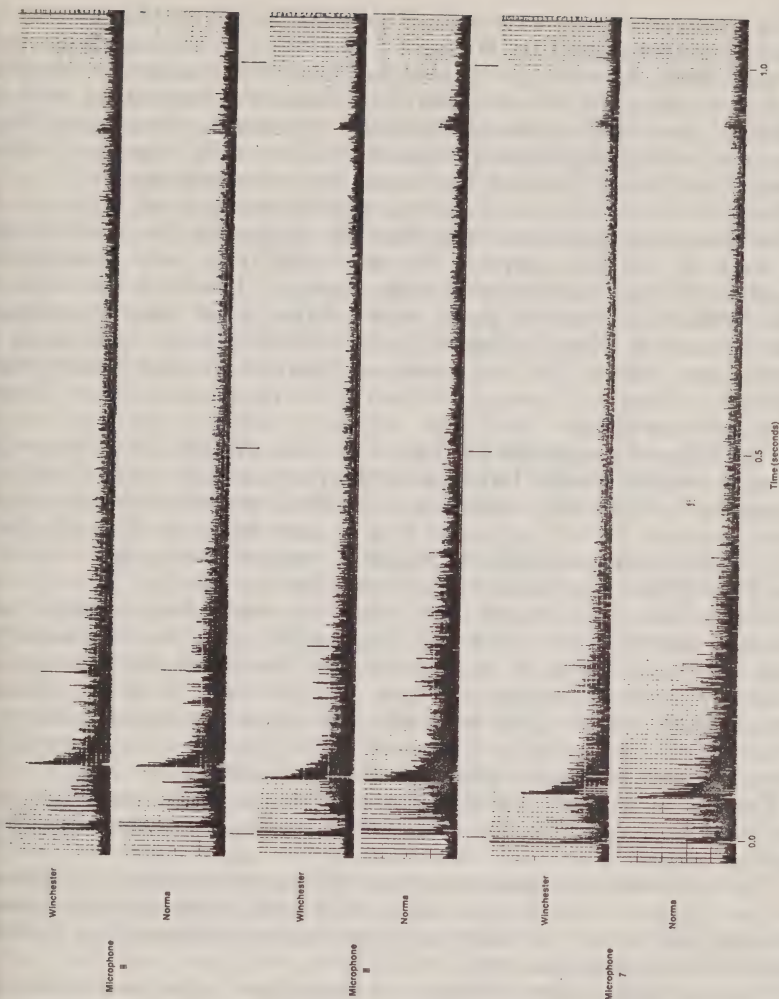
Dr. BARGER. This exhibit is an illustration of the test patterns and it shows six of them.

Mr. CORNWELL. May we have JFK exhibit F-338 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection.

[The information follows:]

was (approximately) at target no. 3 and received at Array 3, Microphones 7, 8, and 9.



JFK EXHIBIT F-338

Dr. BARGER. Here we show six echo patterns in alternate array. They were generated by Western Cartridge Co. ammunition, which is somewhat incorrectly labeled here as Winchester ammunition and then Norma for test shots fired from the depository with the muzzle 2 feet behind the plane of the window fired at target No. 3 received on microphones 7, 8, and 9 in array 3, namely, halfway down Elm Street. Time is plotted on the horizontal scale.

From here to here we have the total time span of 1 second. We have the intensity of sound in decibels plotted on the vertical scale in each of the six graphs. We see initially a very loud pair of impulses; if you look very closely, you see there are two of those. The first of those is the shock wave of the bullet passing overhead. The second of those is the reflection of the shock wave from the street just below the microphone. Then there are three rather distinct echoes and several others here that you can see if your eyes are very good.

This type of graphical data is on an ultraviolet recording, which is hard to photograph, but here is the arrival of the muzzle blast. It comes later than the arrival of the shock wave because the bullet is supersonic. Here is an echo in this case from the Records Building, and here almost nine-tenths of a second later is the echo from the Post Office Annex which is across Dealey Plaza.

Now when you repeat that shot in every way except using Norma ammunition instead of Winchester, you see the same pattern. If you look at it in great detail, you find that the spacing between the shock wave and the muzzle blast using the Western ammunition versus that with the Norma is 5 percent greater. In other words, the bullet is 5 percent faster, giving a shock wave that occurs 5 percent sooner than the muzzle blast.

That is an inconsequential time difference to the matching process, and is certainly not evident when looking at these records just with the eye.

The similarity between these pairs of patterns, which differ only in the types of ammunition that were used, is very great, thereby establishing that the substitution of Norma ammunition for Western was an acceptable one.

As one looks down farther in the street, one sees that the patterns change somewhat. For example, the strength of the Post Office Annex echo is a little bit larger at microphone 8 than it is at microphone 7, as an example.

Mr. CORNWELL. Then, after determining that your test had gone well, that you got the type of data you were looking for, and that there was no substantial differences that would affect the validity of the test, depending on whether you used Norma or Western ammunition, what did you do next?

Dr. BARGER. The next project then was to begin the comparison of the test patterns with the impulse patterns on the police tape. Let me describe the process of doing this now.

We first divided the motorcycle tape into segments, each containing at least one of those patterns of impulses that we were testing for the possibility that they were caused by gunfire.

We then matched each of these 432 echo patterns that are exemplified by that exhibit with each of those 6 segments of the tape. Those six segments that we analyzed comprised the entire part

the record of the Dallas police tape that passed the six screening tests that I described.

The procedure for conducting this match is a mathematical one, and it is known as a correlation. The type of correlation that we used is a binary correlation, and this is a description of a fairly simple process, which I will now attempt to make entirely clear. The echo patterns were each examined to find the loudest echoes thereon, some patterns had only 5, others as many as 17. Any one who that was loud enough to exceed the threshold of audibility was accepted.

Then each of the six segments of the tape were examined, after having presented them in the same way, loudness in decibels on the vertical scale, and time on the horizontal scale. Those records were initially made at a horizontal scale of 16 inches equal to 1 second.

Once those six segments of the tape had been thus prepared, they were similarly thresholded, and I will illustrate this more graphically in a minute, to determine all of the impulses on each that exceeded a threshold. They were then numbered, and their location in time was noted.

Now the design of the test included the feature that each microphone was 18 feet from the next. It is possible that the motorcycle any time was halfway between two microphones, so a microphone could at worst be 9 feet from the motorcycle if in fact there is a motorcycle present. That means that there is at least a 9-foot uncertainty in the location of the microphone with respect to where the motorcycle may have been at each time that we are examining.

This was accommodated in our procedure by adding an uncertainty window 6 milliseconds on either side of each impulse found on the Dallas tape. In other words, each impulse was considered to be 12 milliseconds wide, so as to include any echo received by a motorcycle that had been in fact anywhere it could have been with respect to the nearest microphone.

Having prepared the echo pattern and the impulse pattern from the tape in that way, the correlation was performed as follows: Each of the echo patterns were compared to all impulse patterns on the tape for a total of about 2,600 possible correlations. The correlation coefficient was calculated for each match, and this coefficient was calculated as follows:

The number of coincidences between impulses and echoes was the numerator, and the denominator was the square root of the product of the number of echoes by the number of impulses. If two patterns perfectly matched in this way, the cross-correlation coefficient that you obtained would be equal to unity. If they only touched at one point and at no other, it would be 0.1 or less. The larger the value of the correlation coefficient, the better the match.

Mr. CORNWELL. The closer, in other words, that the number, which would be in percentages, point something, approaches one, the better the match?

Dr. BARGER. That is correct. That was the procedure.

Now once that was done, we had a big pile full of 2,600 numbers, and we exhibited to ourselves then for the first time on the blackboard all of those numbers that were larger than a threshold value,

which was set at 0.6. I will describe the reason for that in a moment.

From this time on, I will mostly talk about those matches that exceeded a correlation coefficient of 0.6.

Mr. CORNWELL. I would like to show you JFK exhibit F-347, and ask you if you would tell us what that is.

Dr. BARGER. This illustrates two types of data. Here are three test patterns. These three test patterns were generated by a shot from the depository with the muzzle 2 feet behind the plane of the window and fired at the target No. 1, which was located just at the head of Elm Street in a position previously described, and it was received by microphones 4, 5, and 6 in the second array position.

Those microphones were on Houston near Elm, and we see in each of these that the first sound that arrived was the muzzle blast. There is no shock wave that precedes the muzzle blast, and that is to be expected because in this case the shot is fired in this direction, and the microphone is over here, and according to the first exhibit I showed, the shock wave would not be seen 90 degrees laterally.

As you look at the arrival of the muzzle blast, you see that in each channel it occurs progressively later in time, so that if you connect the peaks, they slant. This is because channel 4 microphone is farther away from the rifle than is the channel 5 and channel 6 microphone. However, if you look at these peaks out here near one second, these are the echoes from the Post Office Annex.

As the microphone moves away from the location of the rifle, it is moving toward the Post Office Annex. Therefore, the echo in fact comes in sooner, so when you connect the dots signifying each of those echoes, they have a slope in this direction.

One selects all of the significant impulses on these test patterns. We have placed dots on them. Some of the dots are obscured in these dark areas where the photographer has overexposed them, but nevertheless, they are there. We have connected all of those that we think are caused by the same echo-generating device by lines, to show how the time that that echo arrives is changing continuously as you move the position of the receiver.

Up here is shown a portion, a segment, of the Dallas police tape that was also prepared at the same time scale, 16 inches equals one second with intensity vertical on the scale in decibels. The threshold has been made, and all of those impulses that exceeded have been identified and numbered, and the plus or minus 6 millisecond acceptance regions have been marked, these to accommodate the uncertainty of the exact position of the motorcycle.

I am prepared to show how this echo pattern matches the test pattern—and I knew I would probably forget which one it is that matches with it, but it is quite evident. If you tried to match this pattern with this shot, the significant impulses at this point would not in fact match with the significant impulses in this pattern even though with this setting the echo from the Post Office Annex does.

However, if you match it with the test impulse obtained at channel 5, which is a different place, then they match quite admirably in fact. If you count the dots signifying significant echoes in

the echo pattern with the marks signifying the significant impulses in the Dallas tape, you find there are 12 matches out of 17 possible impulses, and if you count these, 15 possible echoes. The cross-correlation coefficient for that match is 0.75, above our threshold value of 0.6.

Mr. CORNWELL. Given the amount of noise in the Dallas Police Department tape, would you expect that you would ever get a complete match, all 17 out of 17 in this case?

Dr. BARGER. Many of the impulses on the tape, on the Dallas police tape, this segment of it in particular, that correspond to the total number that were above the threshold value of 17 are caused undoubtedly by nonacoustical events. Examples are the key transients that I described when I was showing the results of the spectrographic analysis.

However, none of those impulses in this particular segment of the tape have been conclusively identified as being any of those. The noise from whatever its origin that is present in the police recording tape, there is demonstrably noise there, in addition to any impulses that may be caused by gunfire, those would rise up and compete with the impulses caused by gunfire and reduce the value of the correlation coefficient to some number less than one.

Mr. CORNWELL. So in spite of the fact that the correlation coefficient was not one, the match was not perfect, your words were that this was a quite adequate match. In other words, it had a correlation coefficient which approximated one; is that correct?

Dr. BARGER. Well, it was not possible to reach that judgment by looking at one alone. We looked at 2,600 of them, and reached our conclusions from that. This was to illustrate just one.

Mr. CORNWELL. Now I believe, Mr. Chairman, we forgot to ask that that last exhibit be admitted into evidence. May we do so at this time?

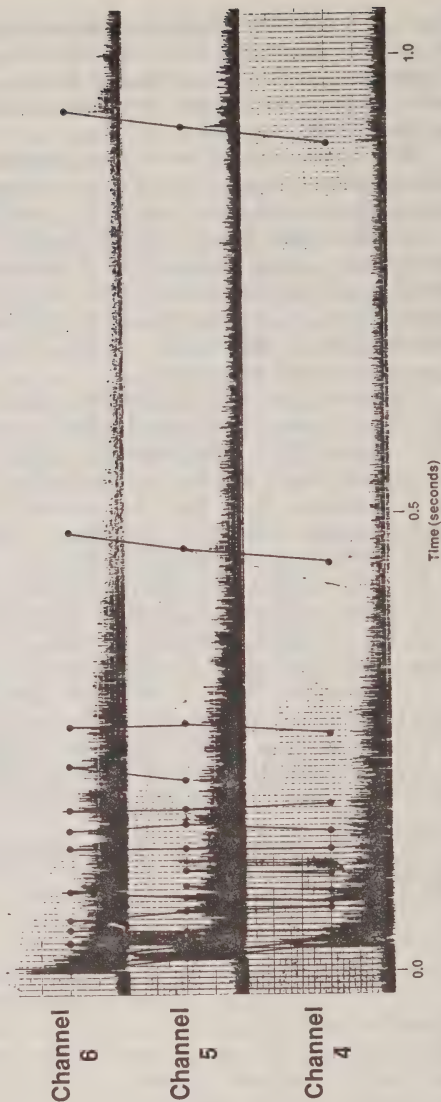
Chairman STOKES. Without objection, it may be entered into the evidence at this time.

[The information follows:]

Test Pattern for Shot 2 (TSBD, Muzzle Withdrawn, Target No. 1) Received at Array 2, Microphones 4, 5, and 6.



Echo Pattern from Stuck-Transmitter Recording, Beginning at Time 137 Seconds.



Mr. CORNWELL. I would now like to direct your attention to JFK exhibit F-367, and for your assistance ask that F-337 and F-344 be placed up there simultaneously.

Dr. BARGER. Yes. This one and this one have been introduced as evidence. This is new.

Mr. CORNWELL. Would you tell us what F-367 is?

Dr. BARGER. It is a list of those 15 matches that—of the 2,600 approximate matches we attempted—that did in fact exhibit a correlation coefficient higher than 0.6.

Mr. CORNWELL. May we have JFK exhibit F-367 admitted into evidence, Mr. Chairman?

Chairman STOKES. Without objection, it may be entered into the evidence.

[The information follows:]

**List of All 15 Correlations Between Impulse Patterns
Occurring in 6 Segments of the DPD Record and Echo Patterns
from 432 Test Shots (2592 Separate Correlations)
Having a Correlation Coefficient Higher than 0.5**

Beginning Time of First Impulse on Tape Segment	Microphone Array and (Channel Number)	Rifle Location	Target Location	Correlation Coefficient**
136.20 sec	No Correlations Higher Than			0.5
① [137.70 sec	2 (5)	TSBD*	1	0.8
"	2 (5)	TSBD*	3	0.7
"	2 (6)	TSBD	3	0.8
"	2 (6)	KNOLL	4	0.7
② [139.27 sec	2 (6)	TSBD*	3	0.8
"	2 (6)	TSBD	3	0.6
"	2 (10)	TSBD	3	0.6
140.32 sec	2 (11)	TSBD*	3	0.6
139.27 sec	3 (5)	KNOLL	2	0.6
③ [145.15 sec	3 (4)	KNOLL	3	0.8
"	3 (7)	TSBD*	2	0.7
"	3 (8)	TSBD	3	0.7
④ [145.61 sec	3 (5)	TSBD	3	0.8
"	3 (6)	TSBD	4	0.8
"	3 (8)	TSBD*	2	0.7
146.30 sec	No Correlations Higher Than			0.5

*Indicates Muzzle Withdrawn 2 ft from Plane of Window.

$$\text{**Correlation Coefficient} = \frac{\text{Number of Echoes Matched with Impulses}}{\sqrt{\text{Number of Echoes} \times \text{Number of Impulses}}} \leq 1.0$$

JFK EXHIBIT F-367

Dr. BARGER. Very well. There are 15 descriptors here. Each one describes a case where an acoustical test pattern matched better than the threshold value of 0.6 with a segment of the Dallas tape.

The first situation where this occurred I will label with blue. There were four test patterns that corresponded with the segment of the tape that began at 137.7 seconds after the stuck button, with coefficient, correlation coefficient, larger than 0.6, and these are the four. I will note with a 1 that that is the first time in the tape that any of the test patterns correlated with any of the impulse patterns in the police tape with a score better than 0.6, and it occurred four times.

Mr. CORNWELL. So at that point you are telling us that there is a segment of the Dallas police tape which very closely approximates or at least has a correlation coefficient of over 0.6 with respect to the various test shots?

Dr. BARGER. Yes. This section may contain the sound of gunfire. Then going on down in the list, we have what I will label the second time, the second place on the Dallas tape where correlations or matches were achieved that were good enough to exceed the threshold value, and I will label that with red brackets to highlight it, and there were five of them.

Then in the same way at a later time, around 145.15 seconds, in green, I will label and highlight the three test shot patterns that correlated with that part of the tape better than 0.6, and, finally, at 145 seconds—yellow is not the best, is it—well, the fourth part of the tape at 145.61 seconds had three different test patterns that achieved the correlation score greater than 0.6.

Let me rummage through my briefcase and see if I can find another color. Black is the obvious choice.

Now a feature of a detection by a receiver that was designed to detect the possibility of otherwise subaudible events by using the threshold correlation procedure is that it can give threshold exceedences, the threshold having been 0.6, under two circumstances. One, it exceeds the threshold when it has correctly detected the event, and the other is, it exceeds the threshold when it has incorrectly detected the event. The latter circumstance is called a false alarm. [Laughter.]

It is the purpose of the rest of my testimony now to examine the question: Which, if any, are false alarms?

Mr. CORNWELL. Before you do that, I take it that you took each of the four segments of the Dallas Police Department tape, which you have indicated with the numbers 1, 2, 3, and 4, and compared them with all of the test patterns, and what you have simply illustrated on the chart is a match very similar to the one that you showed us physically how you performed earlier with respect to a shot in the first time frame. Is that correct?

Dr. BARGER. That is correct.

Mr. CORNWELL. Then would you use the exhibits which are presently in place and tell us what that means in terms of the other diagrams as to the location of the microphones and the direction and location of the shots.

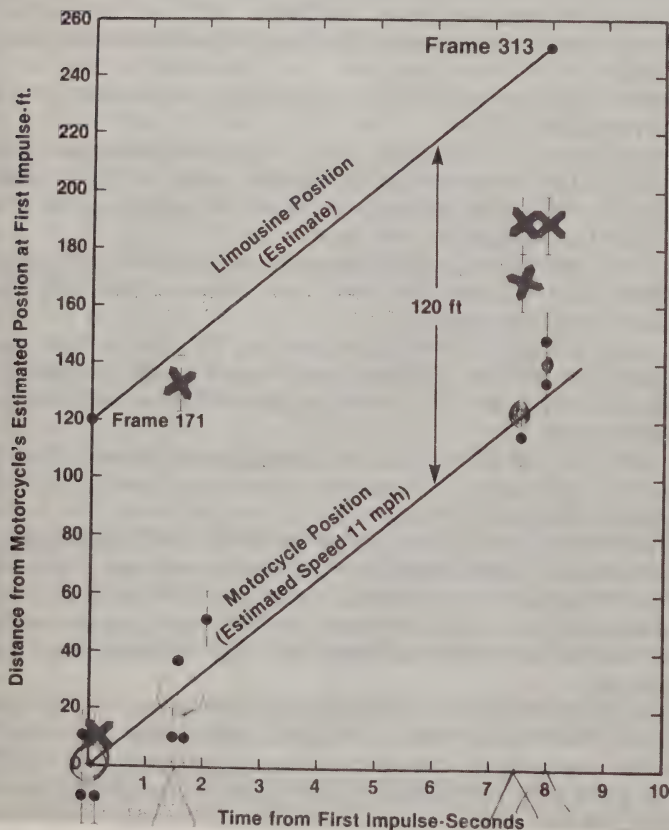
Dr. BARGER. I can say a few preliminary things about that with these exhibits, a few preliminary things. The results suggest that there are detections at four different times of day.

If the motorcycle were in Dealey Plaza, it would only be at one place at each of those times of day and would either be standing still or moving in some reasonable pattern.

The correlations achieved, or the matches achieved, at the first time when any matches were achieved are either at microphone 5 or 6 in the second-array position. There are four correlations there, so that at this time on the tape, we would tentatively estimate that the motorcycle was there.

Mr. CORNWELL. Let me show you at this point then JFK exhibit F-370, and ask you if you would tell us what that is. Could we put the two exhibits, the latest one, F-370, over next to the—

Motorcycle Position as Estimated from the Microphone Locations That Produced High Correlation with Four Segments of the DPD Recording After Excluding Disjoint Locations.



JFK EXHIBIT F-370

Dr. BARGER. This would best be in this position I think, thank you. We want to examine now the meaning of these detections that passed the threshold level to see if there is any reason to believe that they are not all false alarms, possibly. I will attempt it in this way.

The first time all day that we saw any matches was at this time which I have labeled in blue, and, the indication is internally fairly

consistent, and it indicates that the location of the microphone at that time is between microphones 5 and 6.

So I put a blue dot there because that location was derived from the matches made at the first time of day at which any matches were made, and then I will begin to construct a plot.

It would be best if I could draw this for you if you didn't see what is already on there before I start, but if you will attempt to follow the pointer, I am going to plot here time of day with zero representing the time that this first occurrence was observed, and I am going to plot the distance down the motorcade route along the vertical scale as measured from the position of the motorcycle at that time.

In other words, 10 feet down the motorcade route, 20, 30, 40, 50, all the way down to here would be 250 feet.

I will signify that I mean zero time and zero distance here by that blue circle.

Congressman Fithian, will you let me get away with that? Shall I proceed? Very well.

At the second time, 1.6 seconds later, when there were correlations that did in fact exceed the threshold, which I have labeled red, we plot the position of each of the microphones that are correlating with that sound on the tape.

In other words, at that time, 1.6 seconds, all of the microphones were not right here in one area as they were at the first time. Some of them were up the street.

So I will simply mark in red the time on this scale that corresponds to this time of this pattern, but I can't make a nice, little circle yet because they are all over the place. There must be some false alarms in there.

All right now, at the third time we have green as an indication. Green occurs at this time 7½ seconds after the time of the first one, which was indicated by blue.

At the time of the green, the green part of the Dallas tape, we had three detections, three matches—one here, one here, one here.

All those are not all in the same place and the motorcycle can only be at one place at the green time, as well as it can be only at one place at any other time, so there is a bit of ambiguity there, but let's press on.

At the next time, which is one-half a second later, which would be indicated by the black time, 8 seconds after the first one, we notice that the position of the microphone that gathered the test pattern that gave the correlation that passed the threshold was here, here, and here.

All right, now I have explained where those 15 dots came from. Those 15 dots represent these 15 correlations that passed the threshold of 0.6, and they are illustrated as a function of the time when they occurred and the position down the street where the microphone was that picked up the test pattern that gave the correlations.

Mr. CORNWELL. May we have JFK exhibit F-370 entered into the record?

Chairman STOKES. Without objection, so ordered.

Dr. BARGER. Now, we look at these and immediately see the motorcycle can't be at all these places, but there is a high degree of order in this diagram.

The negative hypothesis would be that the motorcycle was not in Dealey Plaza. If that were true, then this scale that describes the distance down the street of the motorcade would be meaningless in the data, and the data would occur in time and in distance down the street at random.

But the eye can see that they tend to follow a sloping line. It can particularly see that because of these prior lines that I drew in.

There is a lot of order in the occurrence of these 15 correlations.

Now, how much order? Well, if one segments the position of microphones along the street into four bins, or four compartments, and segments the time at which they occurred into the four compartments that are naturally the four compartments into which the data are segmented, then one can question what is the likelihood that this ordered pattern could have occurred by chance. In other words, was it likely this pattern would have occurred if the motorcycle wasn't there.

There is a test for that sort of thing, and it is called the Chi square test. If you segment the data into four times and four places, as I have done, it is a test done with nine degrees of freedom. The Chi squared, value, which is a measure of orderliness, is $17\frac{1}{2}$. For those of you that have tables of the Chi square distribution, the meaning of that number is this much order would occur only 5 times out of 100 if this was caused by chance.

In other words, if the motorcycle was not there and so the data were distributed at random, there is only a 5-percent chance that that would have occurred. This much order in the data suggests there is a 95-percent likelihood that the motorcycle was moving in the motorcade.

That is just about at the level of statistical significance that gives a person confidence that there are correct detections in the data. On the other hand, there are demonstrably also false alarms.

This can be seen by observing that if some of those correlations, in fact, indicate the position of the motorcycle, then some of them must be wrong because the motorcycle can't be in two places at once.

Mr. Cornwell, I could proceed with what I am doing now or we could put up those other three. I think it might be easier if I proceed.

Mr. CORNWELL. Go right ahead and proceed.

Dr. BARGER. It is now the task of the committee and me to try to identify the best we can which of these detections are false alarms and which ones are not. We have a good deal of confidence that many of them are not.

Now, in order that the motorcycle could achieve this position 130 feet down the street from the blue position in the 1.6 seconds, it would have to go 55 miles an hour.

There is no evidence to indicate that it did that, and so this particular detection is labeled a false alarm. It couldn't be true. It leaked through because we lowered our threshold of detection to the point where we had enough correlations so we could be reason-

ably certain that the true answers would emerge. We wouldn't want to shut them out.

Now, if you assume that the trajectory of the motorcycle is from the blue position, at which we can be reasonably confident, through these, the slope of that line is 11 miles an hour. That is approximately the speed of the motorcade.

If one said, perhaps these are false alarms and that is the correct trajectory of the motorcycle, in that case the motorcycle would be going 18 miles an hour approximately. It would be going from behind the limousine—I mean, 120 feet behind the limousine and drawing close to it. I had better explain what I mean by that right now.

If we assume that one of these last two occurrences represents the so-called head shot, then we know at that time where the limousine was. It was at frame 313. Frame 313 is 250 feet down the street from the blue dot, so 250 feet at that time of occurrence is here, so this must be where the limousine was at that time.

It was going at about 11 miles an hour as determined by photographic evidence. If one plots back at 11 miles an hour, one finds at the time of the first occurrence the limousine was somewhere 120 feet ahead of the motorcycle, which would have put it right there.

Now, again, I am examining the question about whether these three or these three are candidates for false alarms. If these three are truth, then the motorcycle was going 18 miles an hour, catching up with the limousine, and, in fact, having achieved a position only 40 or 50 feet behind it at the time of the head shot.

Now, if you recall the first thing we noticed on the tape was that there was a diminution of the sound due to the motorcycle 3 seconds prior to the first impulsive pattern that we originally suspected could be caused by gunfire.

There was no obvious explanation for that, until one sees that at that time the motorcycle was just beginning a 110° turn, and on the inside track apparently, and he would therefore have to slow down to execute the turn.

Now, it was further observed that the motorcycle sound stayed diminished after the turn. It did not increase to the level that it had formerly had. Therefore, it would seem that it couldn't have increased speed, which it would have had to do to achieve this position in 8 seconds.

If, on the other hand, it had continued at the same speed of the motorcade, it would have achieved this position in that time.

There is, therefore, the diminished sound of the motorcycle that indicates that these are false alarms. Now, that is an example of the kind of corroborating or disqualifying evidence that is of non-acoustical origin. We are inferring that the motorcycle didn't speed up because the noise didn't increase, this allows us to identify as false alarms some of these correlations we have accepted by lowering the threshold sufficiently to catch the correct detections.

In other words, indications of detection that were accepted by the test, but that were shown by other reasons not to be possible, are therefore, found to be false alarms.

As a result of that judgment, the estimate of the motorcycle position at the time of the second impulse, the red one, would be there, which is right there, and the estimated position then of the

motorcycle at the time of the third occurrence, which is here, is right there.

I lost my graphical symbolism a little, and that is right there, and at the time of the last segment labeled No. 4, which at this time we would estimate it to be halfway between those two right there, and that is there, 120 feet behind the limousine at the time of the head shot, if in fact these impulses represent the sound of the head shot.

There is the possibility of labeling one of these four threshold crossings as a potential false alarm because it involves firing from this place at this target at the time that the limousine was here.

That is almost 180° out. It is inconceivable that anyone would do that, and on that basis one of these can be judged a false alarm.

The fact that some of those are thought to be correct detections was illustrated by all of the order in the data, as I explained earlier.

Mr. CORNWELL. Dr. Barger, does that conclude your description of the analysis that you performed?

Dr. BARGER. Yes, it does.

Mr. CORNWELL. Let me then ask you in sum, is it fair and accurate to state that after all of the analysis there is evidence of four shots on the Dallas Police Department tape, and that the acoustical sounds that may represent those shots are spaced as follows: between the first and second approximately 1.6 seconds, between the second and third approximately 5.9 seconds, and between the third and fourth approximately 0.5 of a second?

Dr. BARGER. Yes, that is a possible conclusion.

Mr. CORNWELL. I have no further questions. Thank you.

Chairman STOKES. Thank you very much.

Doctor, I would just like to say you are a fascinating teacher. I am just glad I don't have to take a test on what you have taught us here, today.

May I consult with the committee for just a moment regarding recessing at this time.

At this time the committee will recess until 1:30 p.m. this afternoon.

[Whereupon, at 12:15 p.m., the committee recessed, to reconvene at 1:30 p.m., the same day.]

AFTERNOON SESSION

Chairman STOKES. The committee will come to order.

The procedure this afternoon will be for the Chair to, first, recognize the gentleman from Indiana, Mr. Fithian, who will be permitted to consume such time as he may need in order to fully and extensively question the witness. After that, the Chair will operate under the 5-minute rule as to other members of the committee.

The Chair at this time recognizes the gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. Thank you, Mr. Chairman.

Dr. Barger, we want to thank you for your excellent, very technical, and very complete testimony this morning. And as you must be

aware, this poses as very serious evidence for us in that it does not corroborate some other evidence that we have.

And I want to go back now, so that I am clear and others in the room are clear, as to just what it was that you set out to ascertain by the tests that you ran in Dallas when you went back and sort of recreated the shot pattern.

What was it that you were specifically trying to do?

TESTIMONY OF JAMES E. BARGER—Resumed

Dr. BARGER. Congressman Fithian, the first thing that we sought to do was to determine if there were any sounds of gunfire in Dealey Plaza that were recorded on that tape. In other words, we were seeking to determine if the motorcycle, whose stuck transmitter was transmitting sound, was in fact in Dealey Plaza.

Mr. FITHIAN. So you are trying to actually locate the motorcycle itself?

Dr. BARGER. It became necessary, first, to determine if the motorcycle was in Dealey Plaza, and then to locate it therein.

Mr. FITHIAN. And as to its location, correct me if I am wrong, you set your microphones 18 feet apart?

Dr. BARGER. That is correct.

Mr. FITHIAN. And you did this from the beginning of the turn on to Houston, down Houston to the turn on Elm Street, and down Elm Street, at least as far as where the Zapruder film showed, the head shot to the President?

Dr. BARGER. That is correct.

Mr. FITHIAN. Now does this mean, to those of us who are laymen, that once you locate a match of echo patterns, you have physically located the motorcycle to somewhere within that 18-foot stretch?

Dr. BARGER. That is correct. The echo patterns depend for their structure on the location of the microphone that receives the sound. We sought matches of the echo patterns that were sufficiently precise to represent a motorcycle microphone located within approximately 9 feet of each of the microphones.

Mr. FITHIAN. And then you presumed that the motorcycle was moving at the speed of the motorcade, or roughly that?

Dr. BARGER. We presumed nothing about the location of the motorcycle or its speed or even direction of motion. The matches were made without any presumption whatsoever about the position of the motorcycle, in fact, of course, without any knowledge that the motorcycle was even there.

After having made the matches, however, the position, I should say, the location of the microphones through which we found matches did in fact progress down the motorcade route at the times that the four subsequent periods on the tape showed matches. And as I indicated previously, the locations of the microphones where the matches were found at the four different times were moving down the motorcade route at approximately 11 miles an hour.

Mr. FITHIAN. And the number of microphones you used was determined by what? By the uncertainty of where or if the motorcycle was there?

Dr. BARGER. We started out with no assumption about where the motorcycle was, other than the fact that it was presumed to be on the street along the motorcade route. Therefore, we wished to put

microphones all along the route in Dealey Plaza. It was very difficult for us to record through more than 12 microphones at one time, and so in fact we did record through only 12 microphones at one time. It was rather time consuming to conduct the full round of test shots considering the need for observing safety precautions and the like. And so in order to conduct the entire test within a morning, we calculated that about 36 microphone locations could be accommodated and this indicated an 18-foot spacing.

The 18-foot spacing was judged adequate because it would place the motorcycle no more than 9 feet from the nearest microphone. That dimension is about half the width of the street. So if we put the microphone in the center of the street, even though the motorcycle was at the curb, we would be within that 9 feet.

The time it takes sound to travel 9 feet is 9 milliseconds. That is a fairly short period of time. We judged that small uncertainty, 9 milliseconds, to be adequately small compared with the total time over which the echoes would arrive, that being almost a thousand milliseconds or 1 second. That is the way that we decided upon the 18-foot spacing, the desire to have a small enough error, possible error, due to uncertainty of the true motorcycle location and the desire not to conduct the test all day long.

Mr. FITHIAN. Then are you satisfied that the fixes, if we can use that term, of the motorcycle that you came up with, are within 8 to 10 feet, or something not much greater than half the distance between one microphone and another?

Dr. BARGER. Yes, yes, I am satisfied that the 18-foot spacing was not too coarse.

Mr. FITHIAN. Now to the layman, it would seem that if you are going to recreate a test, that you might have wanted to use instead of the most modern microphone equipment, you might have wanted to use, as nearly as you could find, microphones and transmitters identical to those which you believed to have been on the original motorcycle. And I would like some explanation as to why you chose not to use the motorcycle microphone, which you have indicated at one point in your testimony you had indeed used, from the Massachusetts police. Evidently that kind of a microphone or transmitter is available.

Why then did you use a more sophisticated system of microphones?

Dr. BARGER. A more sophisticated system?

Mr. FITHIAN. Yes, more sophisticated than obviously was on the stuck transmitter.

Dr. BARGER. Why did we use the more sophisticated?

Mr. FITHIAN. Why did you?

Dr. BARGER. There are two reasons. In the first place, as I showed, the radio distorts and limits the amplitude of loud sounds. Each radio does that in detail in a different way. We weren't seeking to look at the waveform of each sound echo, only the time at which it occurred. The radio does not distort the time at which it occurs, nor does the more sophisticated equipment that we used.

The more sophisticated equipment that we used is known to be reliable and not to fail in times of stress in the middle of a sensitive test. Old motorcycle radios from those earlier days are known not to be very reliable, nor are they to be found in the

quantities that we required. Therefore we selected a system that would give us equivalent data but more reliably.

Mr. FITHIAN. So that I understand now, the data that you were really looking for was not dependent upon the amplitude or the height of the blip, or whatever you want to call it, greater than a certain amount which would help you identify it. Rather you were trying to locate it along the time line?

Dr. BARGER. Correct. That is absolutely correct.

Mr. FITHIAN. As I understand it, Mr. Chairman, this committee employed two other specialists that Mr. Cornwell referred to this morning, Mark Weiss and Ernest Aschkenasy, and you went over the plan of the test with them; is that correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. Did they concur in the layout of the array of microphones, the type of microphones? In other words, did they concur in your proposed test plan?

Dr. BARGER. They did.

Mr. FITHIAN. Tell me then something about the difference in the status of the science of acoustics from 1964, when presumably this tape was in existence and could have been analyzed and 1978 when you analyzed it, 1977-78 when you analyzed it, not in great specificity. But what are the grand changes that have taken place in that 14-year period?

Dr. BARGER. Well, there are two. First, the adaptive filter that we used to reduce the level of the motorcycle noise on the tape was a procedure that was not then, had not then, been worked out. It was not known.

Second, the method we used to detect for the possibility, to search for the possibility of sounds, is generally called a matched filter or a matched detector. The theory of that device, that method of seeking the presence of suspected signals in loud noise, was developed principally I believe by the radar community during World War II. It was therefore known in 1963 to people who study the process of detecting expected signals imbedded in loud noise.

The community that shared that knowledge in 1963 was not as wide as it is now. I don't believe I knew about it then.

Mr. FITHIAN. But the filtering process that you used came in, I think you said this morning, in 1968 to 1970; is that correct?

Dr. BARGER. Well, probably more like 1966 to 1968, but, that is correct.

Mr. FITHIAN. Now some of the terms you used this morning I am sure must be every day terms to you, but I am not sure all of us followed those.

One of the key terms seemed to be "impulsive events" or "sequence of impulsive events" or something to that effect.

What does that term mean, to those of us who don't get along very well with this science?

Dr. BARGER. I used the term "impulsive event" to describe the brief, loud bursts of noise that appeared on the Dallas police tape.

Now when I listened to the tape, you hear spits and stutters and pops. Those would all be descriptors of impulsive acoustical events. When you look at the waveform as presented on the oscillographic records that I showed, then the transient events are characterized

by short intervals of time in which the loudness of a sound is intense, so it looks like blips or peaks in the amplitude record.

Mr. FITHIAN. And another term that was used, I think, as you took that concept and tried to transfer it to the visual, was spectrographic analysis of this transient event. I take it that is that chart that you put up on the wall this morning?

Dr. BARGER. Yes, I did put—we did have an exhibit that was a spectrographic analysis of a segment of the tape recording; that is correct.

Would you like me to discuss that briefly?

Mr. FITHIAN. I just wanted to make sure my understanding was correct, and, that is, that the spectrographic analysis is a sort of a visual playout of this grassy looking material that is blips and depressions.

Dr. BARGER. Yes; the spectrogram itself is a visual description of the tonal content, frequency content, pitch content of sound as a function of time. In other words, if a person was raising his voice like that, you would see a diagonal line on the spectrogram, indicating as time progressed, the pitch of the sound was rising.

Mr. FITHIAN. And now the adaptive filtering you used, do I understand that correctly, that this is the process of filtering out noises and things that you don't want to measure?

Dr. BARGER. The adaptive filtering process, which I characterized as a Widrow-type adaptive filter was used because it is effective in reducing repetitive noises, not impulsive noises, but repetitive ones. If you listen to a motorcycle, basically you hear the sounds of the cylinders firing, and they fire at idle for that motorcycle about once every 140 milliseconds. So, therefore, the noise as generated by that motor cycle has a tendency to resemble itself every 140 milliseconds later.

The adaptive filter studies that noise, determines what is expected to occur in the future, subtracts that out from the data that is just coming in, and leaves you with the absence of that repetitive noise. But if you are looking for transient events or impulses about which the filter could have no prior knowledge, because they only occur once, then that filter leaves you with those transients more clearly observable. The noises, in other words, the repetitive noise that was masking those transients is thus reduced.

Mr. FITHIAN. And one final sort of terminology question.

You used the term "match filter technique," "matching filter techniques"—

Dr. BARGER. Yes.

Mr. FITHIAN [continuing]. And that means what?

Dr. BARGER. That means that you have in your—you expect to receive one of many kinds of signals. By "many kinds," I mean a signal in this case that has a series of impulses that occur in a definite sequence, like, let's say, the first one occurs at a particular time, the second one perhaps 3 milliseconds later, the third one maybe 15, the fourth one 27, the fifth one 12½ after that, and so on, a definite sequence of impulses.

We went to Dallas to find out what the sequence of impulses would be that would be generated by Dealey Plaza if a gun was fired.

Having found out what that sequence of impulses is, you then go through the tape in question and look for sequences of impulses that match it. When you find one that matches it, you say aha, at that time something occurred that generated a pattern of transient events that just matches what we did in Dealey Plaza, and when that occurs, you judge that you have made a detection. You have identified a similar source of noise. The word "matched filter" is a technically correct or often used form, and the use of the word "match" is fairly self-evident, I believe.

Mr. FITHIAN. Now I am sure there must have been a reason for your lengthy analysis of this bell tone. I am not sure that—I guess my question is why did you look for and analyze and worry about the bell tone, since we were looking for some kind of rifle shots or pistol shots or whatever?

Dr. BARGER. There are two reasons. First, we wanted to see if in fact there were any sounds on the tape that were caused by acoustical signals such as a bell would generate. We found that the sound that resembled a bell was a bell.

Second, we hoped to establish, we hoped to learn, where that bell really was and had thought if we could find it, we would then know where at least one microphone was that was transmitting on channel 1 at that time.

Mr. FITHIAN. So, you were trying to verify that there were transmittals on that tape?

Dr. BARGER. That there were acoustical events as opposed to what might be called microphonics. In other words, as you take a radio transmitter and just kick it around and shake it, as a motor-cycle might do, particularly if the radio were broken, then it would transmit signals that wouldn't have any bearing due to sounds. We just wanted to see if there were sounds on there.

Mr. FITHIAN. Now, I am not sure, counsel, what the exhibit numbers are, but I am interested in the way you went about locating the targets; that is, physically locating the targets that you were going to fire at.

I understand why you selected the two points from which you fired, but could you put up the three or four photographs of Dealey Plaza, F-367 and F-377?

Mr. CORNWELL. F-337 and F-344, I believe.

Mr. FITHIAN. While they are doing that, let me ask you sort of the central question.

Is it your conclusion that you proved that there were four shots?

Dr. BARGER. No.

Mr. FITHIAN. With regard to the groupings of shots, what do you prove then?

Dr. BARGER. As regards the grouping of the shots, we demonstrated with high confidence that if there are four shots, we demonstrated the times at which they occurred, and the intervals between them were described by Mr. Cornwell, 1.6 seconds, was it 5.9, and 0.5.

Mr. FITHIAN. Would you repeat that again, please?

Dr. BARGER. Yes.

Mr. FITHIAN. The distance, the time frame between the first and the second shot is what?

Dr. BARGER. 1.6 seconds.

Mr. FITHIAN. And between the second and what you perceived to be a possible third shot?

Dr. BARGER. 5.9.

Mr. FITHIAN. And between the possible third and the possible fourth shot?

Dr. BARGER. 0.5.

Mr. FITHIAN. 0.5?

Dr. BARGER. 0.5, one-half second.

Mr. FITHIAN. One-half second. So what you are saying, Doctor, is that if there were four shots fired, they came at those intervals?

Dr. BARGER. Yes.

Mr. FITHIAN. And let's hypothesize for a minute. If there were only three shots fired, how do you account for the disturbance that you find at I guess it would be 5.9 after the first shot—after the second shot, I am sorry.

Dr. BARGER. I don't have the best exhibit in front of me to answer that, but let me do it without, the first time. Of the 15 detections that our matching process achieved, 10 of them cannot be discounted as false alarms.

It would be necessary for at least three of those to be correct detections, to have established the coherence in the data that led to our conclusion that the microphone was in fact in Dealey Plaza.

It is therefore likely that somewhere between 3 and 6 of the remaining 10 are also false alarms. Therefore, anyone—

Mr. FITHIAN. May I interrupt just a moment?

Dr. BARGER. Yes, of course.

Mr. FITHIAN. I think the staff was putting up the right pictures. I wanted the big pictures of Dealey Plaza. I think there are three or four of them altogether. You had three of them out just a moment ago. Go ahead, Doctor.

Dr. BARGER. Therefore, it would not be unreasonable to expect that approximately 5 of the remaining 10 correlations were also false alarms.

That would indicate that about one-half of the detections that I did not previously indicate to be false alarms, about one-half the remaining 10, are false alarms. This would indicate that the probability that each one is a correct detection is about one-half.

Mr. FITHIAN. I am going to return to this a little bit later. I am going to put those microphone images up there and we are going to go through that time frame because it is very important to me, but right now I want to try to establish the location of the targets.

Now, I am not at all interested in the charts right at the moment. I just want the pictures, the two pictures you have plus another one that shows some interstate signs with targets behind them. That is the particular one I want.

[Exhibits F-339, F-340, F-341, and F-342 were displayed.]

Dr. BARGER. Well, it is there.

Mr. FITHIAN. Yes, OK. Set it up on the upper easel if you will. Thank you.

Now, could you put on your Lavalier microphone, Doctor, and I would like for you to locate for us again the locations of the targets that they fired at.

Dr. BARGER. Yes; the target that was illustrated as target location No. 1 is this pile of sandbags right here.

Mr. FITHIAN. And let me just make sure my optical illusion isn't getting away from me. That is between the Texas School Book Depository window on the left and the interstate signs overhead, is that correct?

Dr. BARGER. This picture is taken from the window adjacent to the window from which Oswald is thought to have fired, so it is taken from the depository.

Mr. FITHIAN. So that one you are pointing at is up the hill, if you will. It is located in the road prior—if you are going toward the underpass—prior to arriving at the interstate signs, the first target that you just had pointed at down here, just right there.

Dr. BARGER. Yes.

Mr. FITHIAN. That is physically before you get to the interstate signs.

Dr. BARGER. These signs?

Mr. FITHIAN. Yes.

Dr. BARGER. Well, it is physically just before them, that is correct.

Mr. FITHIAN. And the second target is where?

Dr. BARGER. The second target is hiding behind the trees right at that point.

Mr. FITHIAN. The third target is the one down the road?

Dr. BARGER. That is the third target.

Mr. FITHIAN. Now, in the location of targets, are those, as nearly as you can compute from the Zapruder film or otherwise, the exact location of the President and Governor Connally in the limousine?

Dr. BARGER. No; with regard to target No. 3, which was positioned to be at the same place as the limousine in frame 313, it was put in that place as well as we could determine it.

Mr. FITHIAN. And is target No. 1 in the same location that you presumed the first shot was fired?

Dr. BARGER. Of course, I don't know exactly where the limousine was when the first shot was fired.

Mr. FITHIAN. I guess basically I am asking you why did you locate the target there?

Dr. BARGER. As I recall, we sought to place the first target at about the position of the limousine, at about frame 158-160. The reason for that was that the preliminary screening that I described earlier of the impulses on the tape, indicated that if the first pattern of impulses that could be seen occurred prior to frame 313 by enough time to place it back at about frame 158. That is why we tried to position the target at that place.

Mr. FITHIAN. Is target No. 2—which doesn't really show up from here, but you pointed to it—is that at as nearly an accurate location as possible?

Dr. BARGER. May I ask Mr. Cornwell a question?

Mr. FITHIAN. Yes.

Dr. BARGER. I forget right now which Zapruder frame we tried to position target No. 2 at.

Mr. CORNWELL. We initially attempted to place it in the vicinity of 190, which would have been slightly further down the street from where it ultimately ended up, but the tree size is different today than it was in 1963, and the signs over the street which are in that area were of course not there in 1963, so we had to simply

find the shortest point from the 190 frame that we could still shoot at sandbags. It was moved, as I recall——

Dr. BARGER. We were striving for the location of the target at the position of the limousine in frame 190, which was obscured by the new growth of the tree, and so we moved it to that position to make it——

Mr. FITHIAN. Doctor, the reason that I am going into this is that in studying the data last night from your research, and going over what you find as possible matches and then eliminating those which you believe to be false signals, there seemed a dearth of any matches with the second target in your data.

The question is whether or not there is anything—we have already eliminated the new hotel building several blocks away as having been in any way altering the echo pattern.

I am curious to know whether or not the location of that target, the interstate signs, the firing direction or anything like that would tend to give us the kind of data that we seem to have on target No. 2.

Dr. BARGER. Three of the matches were achieved for test patterns obtained by firing at target No. 2. I wouldn't describe that as a dearth, that is to say, three out of 15 would represent.

Mr. FITHIAN. But if I may come back to this a little bit later, if you want to remember the point and we will take it up then. If I remember in going through the ones that you eliminate as false alarms, that reduces any match to target No. 2 either to one or to zero, I am not positive, but we will come back to that.

I just was curious to know whether the intrusion of the interstate signs into the whole acoustical pattern does anything to the results you get.

Dr. BARGER. Yes; the target No. 2 was responsible for at least two false alarms. Let me just check this a moment and make sure. Yes, it contributed false alarms in each case. There was a detection made at the second time interval when a shot was fired at target No. 2, and that one was eliminated because it was detected at microphone No. 5 in the third army position, and that was the one that would have required a 55-mile-an-hour speed of the motorcycle to achieve, and so that was labeled as a false alarm.

Target No. 2 contributed a false alarm here, which was one of the three detections made at the third time segment. That too is ruled out because of improbable motorcycle speed required to achieve that position at microphone No. 7 at the time of the third group of matches. And finally, a shot at target location No. 2, contributed a false alarm in the fourth pattern, that one having been identified as a false alarm by the improbable motion of the motorcycle required to achieve it, so that is correct.

The three detections that were achieved from test patterns obtained by shooting at target No. 2 appear to be false alarms.

Mr. FITHIAN. What impact, if any, did the firing of the bullet from the school depository window between the two interstate signs, what impact would that have in altering the data, if any?

Dr. BARGER. The presence of a structure such as this would have been highly irrelevant to the tests had it been over here.

Mr. FITHIAN. You say "highly relevant"?

Dr. BARGER. Irrelevant.

Mr. FITHIAN. Irrelevant.

Dr. BARGER. Had it been over here. The fact that the trajectory of the bullet missed that sign by only a few feet indicates that, as the shock wave which is radiated from the bullet as it passes, would be in fact scattered by those signs, generating a new source of sound at that point.

Mr. FITHIAN. And so then you really couldn't expect to get a matchup; is that what you are saying?

Dr. BARGER. That would introduce additional echoes in the test pattern that would not have——

Mr. FITHIAN. Let me make sure I am correct.

If you introduce additional echoes, or if you get additional echoes anywhere that don't match up, that reduces the probability, reduces it from eight to seven or seven to six or six to five or whatever.

Dr. BARGER. It reduces the probability of detection and it increases the likelihood of a false alarm.

Mr. FITHIAN. Thank you.

Now I also looked at the pattern of shooting and noticed that you did not have as many shots from the grassy knoll toward No. 2 as at the other targets. I think No. 1 and No. 2, if I am not mistaken.

Were there any reasons why you didn't have a full round of firing?

Dr. BARGER. Yes; I think you are referring to the fact that we did not fire at target No. 1 from the knoll.

Mr. FITHIAN. I am sorry, I said two. I meant one.

Dr. BARGER. Yes.

Mr. FITHIAN. Yes.

Dr. BARGER. That is correct. When we were setting up the locations of the microphones and the rifles and so on, we observed that target No. 1 was directly between the rifle on the knoll and the spectators that had been positioned behind a barricade on Elm Street, and it was judged entirely inappropriate to attempt that shot.

Mr. FITHIAN. Now there is one other question I need to ask about what is up on the board there on the easel.

When we visited Dallas, when the committee visited Dallas, and we inspected the Texas School Book Depository, we were told that, at the time that they picked up the shells, the empty cartridges on the sixth floor near the corner, I believe it would be about where the gentleman is standing or in that area, that the area was physically cased in by boxes, not quite entirely, but nearly so, and that some writers have described this as the sniper's nest, et cetera.

But in any event, to get to the acoustics of it, would those stack of boxes in the depository right around where allegedly the shots were fired have any significant impact on the echo pattern that you could expect to get outside?

Dr. BARGER. They would not have a significant impact on the matches performed with the echo patterns. The reason is they would introduce into the echo patterns additional signals which are reflected from the boxes you describe that occur at a time later than the muzzle blast. By the time it takes the sound to go from the muzzle to those boxes and back out the window, that amount of

time would be less than 12 milliseconds, if those boxes were within 6 feet of the rifle. And we have, as I described, broadened the width in time of each impulse on the motorcycle tape by 12 milliseconds to accommodate the uncertainty of microphone position relative to the motorcycle. And the broadening of the acceptance time for each impulse in the motorcycle tape solves the uncertainty caused by the lack of precise microphone location, since we didn't know where the motorcycle was. It also solves the problem that you just described.

Mr. FITHIAN. Let me see if I understand that now.

What you are saying is because the little elliptical bins that you put over these blips—I don't use very scientific language here—but that you put over these blips in the spectrograph because they accommodated up to, what did you say, 6 feet on either side?

Dr. BARGER. Yes, 12 in total.

Mr. FITHIAN. Twelve feet total, that the boxes in order to have been in any way effective would have had to have been closer? In other words, your accommodation, your allowance, took in any allowance for the boxes being there or not being there?

Dr. BARGER. Yes, providing those boxes were within 6 feet of the muzzle. If they were significantly farther than that, then the echo coming from them and trying to get back out of the window and hereby becoming relevant to the test pattern would be so weakened so that it wouldn't have had any significance either.

Mr. FITHIAN. For practical matters, you are saying it doesn't make any difference whether you stack up boxes when you do the test firing or not?

Dr. BARGER. Absolutely.

Mr. FITHIAN. Thank you.

Let the record show that the question pertained to JFK exhibit '342, the picture of the marksman.

Now one thing that has been bothering me this morning is the possibility that since more than one radio could be transmitting on that channel 1 that the stuck microphone was on, that indeed we might have been picking up some sounds from somewhere out of Dealey Plaza or somewhere else by some microphone other than the stuck microphone, since I believe you said that the bell tone was off outside. The bell tone did not come in over this particular microphone—

Dr. BARGER. That is right.

Mr. FITHIAN [continuing]. To any way that we could locate. Then why couldn't we hypothesize that perhaps the third or the fourth shot or the first or the second shot or some other shot might indeed have been picked up, that kind of a sound might indeed have been picked up by some other radio transmitter being keyed somewhere else other than Dealey Plaza?

Dr. BARGER. Yes; we did establish, particularly with the spectrograms, that other microphones were keying in particularly at the times, the later two times, according to time three in green and four in black on that exhibit. And so during the time when those other radios were transmitting, sounds from their microphones could be expected to also appear in the tape recording, and, therefore, if a pattern of impulses was generated by some mechanism at

the location of the other microphone, then that pattern too would appear on the recorded sound.

However, these patterns were quite complex. They contained no fewer than 10 echoes, as I recall, spread over total times no less than about half a minute—let me see now, half a second—and the interval of time between each of these 10 echoes over this whole period of time, half a second or more, is a very intricate pattern. The likelihood that some other mechanism that would generate a similar pattern that would match with the test patterns is extremely remote.

Mr. FITHIAN. And if one of the other microphones were on one of the other motorcycles in Dealey Plaza, what then?

Dr. BARGER. If another motorcycle in Dealey Plaza keyed in at that time, you would have a test pattern, if you will, that is to say, you would have the sound of gunfire on that one too. If it was sufficiently noise free that our detection process caught it, it would have shown a high value of correlation in the match and would have been marked as a detection.

Mr. FITHIAN. But it would have come the same time frame, though, if it were a shot in Dealey Plaza; is that correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. And so the only thing that would be somehow altered would be the location of the motorcycle.

Dr. BARGER. That is correct.

Mr. FITHIAN. So what you are saying is that the only way you could have gotten the pattern that matched is if over some other transmitter that was not in Dealey Plaza, to get those 10 or 15 or however many echo patterns matched up, there would have had to be a configuration somewhere else very much like Dealey Plaza. The transmitter would have had to have been keyed at exactly the right time, and then you would have had this—

Dr. BARGER. That is correct.

Mr. FITHIAN. How would you classify that; very unlikely, impossible, remote?

Dr. BARGER. Extremely unlikely.

Mr. FITHIAN. When you went to Dealey Plaza, you expected a certain approximation or a certain number of impulses. In general now, not referring to anything specific, but your general conclusion, did you get the approximate number of impulses that you anticipated?

Dr. BARGER. Yes.

Mr. FITHIAN. I want to ask this question again, and that deals with the term you used, "correlation coefficient," when you got those.

Would the correlation coefficient be altered if the motorcycle is not at the exact location of the test microphone? In other words, you talked about a correlation coefficient of 0.8 or 0.7, 0.75, 0.6.

Would that have been altered if the location of the microphone were 8 or 9 feet away from where the motorcycle actually was when the Dallas Police Department tape was made?

Dr. BARGER. I am glad you asked that because I don't think I made this point very clear the last time. The purpose for accepting as a match an impulse that occurred within plus or minus 6 milliseconds of an echo was to try to overcome the problem of a low

correlation occurring if you by chance did not have the microphone in exactly the right place. If you insisted that those impulses line up with those echoes precisely, you would have to have the motorcycle just where the microphone was. We didn't have that many microphones or that much time, and so we used, as I said, the 18-foot spacing of microphones.

In order to prevent a loss, a significant loss of correlation, because of the uncertainty with respect to the location of the motorcycle and the microphone, we accepted anything that came within 6 milliseconds as a match.

Now let me explain where 6 milliseconds came from. I was trying to guard against low values of correlation, and therefore loss of information, just because I happened to miss the location of the motorcycle, but I couldn't accept as a match echoes and impulses that were half a second apart because then I would accept everything, so it is necessary to find a medium ground.

Now here is how that was done. In the case where the microphone and the reflector that is causing the echo and the source are all in one line, then the 9-foot uncertainty that I had with the 18-foot spacing, plus or minus 9 feet, would generate a plus or minus millisecond uncertainty in the location of the echo.

Now it is also true that if the sound that generates the echo that I am interested in is arriving perpendicularly to the line connecting the microphone and the possible place of the motorcycle, then that uncertainty is of no consequence because it would arrive at both of the two places at the same time. So the error caused by this phenomenon varies between zero and 9 millionseconds. So mathematically we said the arrival of these echo sounds from each direction is equally likely, and we determined an average of the error that would be introduced by a 9-foot uncertainty, and it was 6 milliseconds.

This is not a linear average. That would have given $4\frac{1}{2}$, but there is a cosine involved in this, and so the 6-millisecond uncertainty was arrived at in that way, and it was designed to minimize the loss of correlation due to uncertainty in the microphone location.

However, it won't work perfectly because in those cases where the error is actually 9 milliseconds, when the echo happens to be coming in in the same direction as the line connecting the motorcycle and microphone, then it will cause a lack, a loss of correlation. So the answer to your question is there is a slight loss in correlation but it is not as large as it would have been if we had not used the plus or minus 6-millisecond window.

Mr. FITHIAN. Staying with the loss of correlation, because some of us are bothered when you match up a shot pattern that we know happened, and you can't match up all the 12 blips or the 15 blips or whatever, here and there, what you have just said is that some of them might be attributable to the fact that the motorcycle was offside by 3 feet or whatever. In other words, you might get a fluctuation in the correlation coefficient because the motorcycle is not beyond your tolerance level.

second—

Dr. BARGER. That is right.

Mr. FITHIAN. Would you get a reduction in the correlation coefficient if induced onto the tape by a second transmitter somewhere there were noises that exceeded the threshold level that you established?

Dr. BARGER. Absolutely. The presence of impulses in the motorcycle tape that we counted, because we observed them to be there that are caused by nonacoustical effects, give us therefore the impossibility of achieving a match because they were caused by some entirely different phenomenon. And the way of computing the cross correlation coefficient or the correlation coefficient that accommodates that, in other words, in the denominator is the square root of the number of impulses. If there is a lot of noise in the tape, as there is a good deal, and many of those impulses are caused by that, they can't be matched, and they will reduce the level of the correlation coefficient just mechanically, because there are numbers in the denominator. So if there are lots of noise pulses, that will reduce the correlation coefficient, exactly.

Mr. FITHIAN. So you would not expect to get a one, or I think you used the term "unity."

Dr. BARGER. The motorcycle tape is so noisy, not only with the sound of the motorcycle, but also keying transients and the like from other transmitters that it would be extremely unlikely that you would have a segment of the tape so noise free that a perfect correlation would be achieved, and in fact none were.

Mr. FITHIAN. From what you know about the echo pattern of the Mannlicher-Carcano rifle, what insight, if any, can you offer into Governor Connally's testimony, if you heard it or read it?

Let me try to reconstruct.

Do we have the transcript of Governor Connally?

On September 6, Governor Connally testified and said that—let me back up here a little ways. Let me take his last part of his testimony first.

He says, "I heard another shot. I heard it hit. It hit with a very pronounced impact," and at that point the Governor slapped his hands together to demonstrate the sound that he heard. "Almost like that." He said "It made a very, very strong sound."

Then he says:

Immediately I could see blood and brain tissue all over the interior of the car and all over our clothes. We were both covered with brain tissue * * *

And he goes on.

Now, as I interpret what the Governor said, after he had been hit, and Mrs. Connally had pulled him down into her lap, he was still conscious, and he heard what sounded like a shot, and then he heard what sounded like the bullet striking the President's head.

Now, No. 1, if in fact the speed of the bullet is supersonic, you could not hear it in that sequence; am I correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. In other words, he would have had to have heard the bullet striking the skull first, and then the muzzle blast would come at some fraction of time after that?

Dr. BARGER. That is correct.

Mr. FITHIAN. Well, then, obviously there has to be some other interpretation of those sounds, if in fact the Governor heard the sounds correctly.

Can you shed any light on this at all?

Dr. BARGER. Yes; the findings, as I have described them, are that if there are four shots, they have the sequences that we described, and in fact, if you could uncover that back chart, please, you will see that the time segment marked in green occurs a half a second before the time segment marked in black. Therefore, if there are four shots, the times that they occur are shown there on that chart, the last two being a half a second apart.

Now, as I indicated, there are false alarms in this detection experiment or test that I have conducted, and so, therefore, it is the purpose of other evidence to compare to these findings to see which—if you can determine which of these findings are, in fact, corroborated or are discredited by other evidence. In that sense, the comment that former Governor Connally made is of some relevance because a statement that two loud sounds were heard, that are separated only by a small period of time—I don't remember exactly what word he used—"shortly thereafter," as I recall—would indicate that he heard two loud impulsive sounds at the time of the third shot. I can't put any significance in the fact that he may have inverted the two times. That was a traumatic period, obviously, for him. But it is interesting that he did, in fact, characterize as the sound of impact what must have been the sound of a rifle, because it would seem possible, then, that his testimony indicated there were two briefly separated impulsive sounds that might both have been shots.

Mr. FITHIAN. I agree with you obviously that it was a very traumatic and almost impossible-to-imagine state of mind. But, I recall the Governor saying very clearly, early on, that he had done enough hunting that he recognized rifle shots when he heard them, et cetera, and that is what caused him to turn his head at the beginning way back, I don't know, frame 170 or 180, or whatever, and he did characterize or if there are only three shots and the last one is the one that hit the President in the head, then he had to confuse what would have been a bullet wound in the skull with a rifle shot.

Dr. BARGER. That is correct.

Mr. FITHIAN. As an expert in acoustics, can you just help me out trying to distinguish what the differences in characteristics could have been?

Going back to my original premise of the question, the first thing he heard after being in Mrs. Connally's lap could not have been a rifle shot if there is only one shot fired.

Dr. BARGER. That is right.

Mr. FITHIAN. The first sounded to him—if you x out our fourth or third one you have come out with as a possibility, prior to the head shot, then that first noise the Governor heard could not have been a rifle shot.

Dr. BARGER. If he could have heard the sound of the impact at all, as he thought he did, then it could not have been the second sound that he heard; it would have had to have been the first—that he described as an impact.

Mr. FITHIAN. My question was basically if you could help me describe acoustically or otherwise what the human ear would hear in the difference between a rifle shot from the Texas School Book Depository and a bullet striking the head of the President 6 feet away or 5 feet away or whatever.

Dr. BARGER. I have heard the former, and, of course, I have no concept of the impact sound, I really have no opinion on that.

Mr. FITHIAN. I want to return to that troublesome shot from the grassy knoll, the third one that comes just ahead of the obvious head shot. If we are to stay with three bullets being fired as our final interpretation, then we have to somehow or other rationalize a way or do away with or accept as other phenomena the third impulse that you have on your charts, is that correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. What might the third impulse be, then, if it isn't a shot?

Dr. BARGER. If it is a false alarm, which I described as the alternative to being a correct detection, by the very nature of a false alarm, it cannot be very easily explained. The only reliable procedure I can conceive of for identifying it as a false alarm is by comparing the time that it had to have occurred with all other testimony that has come and will follow about the possibility of that having occurred.

Mr. FITHIAN. Random statistical errors? Would that have done it?

Dr. BARGER. As I indicated just before, I think there is an even chance that about half of those remaining detections are, in fact, false alarms. Each one has an even probability of being one, including the one you just cited. I guess there is a chance of random error that that correlation occurred.

Mr. FITHIAN. I would like to recall, Mr. Chairman, JFK exhibit F-370. Doctor, if you would proceed over there, I want to make sure before I turn you loose here that I understand that vital chart.

Now, starting from the lower left-hand corner, where originally on the chart you had four possible verifications, and you eliminated one, you are fairly certain that that is the first shot, and you are fairly certain of the location of the motorcycle within 10 feet; is that correct?

Dr. BARGER. The origin of this chart represents the estimate that the motorcycle was half-way between microphones 5 and 6 at that time; that is correct.

Mr. FITHIAN. Now, you use the term "false alarm." Perhaps we should put up JFK F-367 there for you to refer to. I notice in some of those that you rule out as false alarms they are really the same shot except that one is with the muzzle at the plane of the window and the other is at the muzzle 2 feet inside. Isn't that correct?

Dr. BARGER. There were these two which you must be referring to.

Mr. FITHIAN. Take No. 1, for example.

Dr. BARGER. This one?

Mr. FITHIAN. Yes; which one have you eliminated—one of the ones you have eliminated. But is it meant that the first shot heard would have been from the grassy knoll and it would have been aimed at the target clear down by the underpass; is that correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. So you eliminated that just because it wasn't very probable that the first shot would have been it was 75° away from where the limousine was, or whatever?

Dr. BARGER. That is correct. I used that as an example of the lack of any evidence to corroborate that someone would have done that.

Mr. FITHIAN. That leaves three other matches or verifications you came up with right in that time frame?

Dr. BARGER. Yes.

Mr. FITHIAN. As I read this chart, two of those are shots which were fired with everything exactly the same except that the rifle muzzle was withdrawn 2 feet from the plane of the window.

Dr. BARGER. That is correct.

Mr. FITHIAN. And so, in fact, all three of those matches come from the microphone being in the same place and everything else being in the same place with the exception that you fired one, which is shot No. 3, which has an 0.8 correlation coefficient, with the muzzle at the window plane, and you fired the other two, having 0.8 and 0.7 correlation coefficients, with the muzzle of the Mannlicher-Carcano withdrawn inside the window 2 feet. That is the only difference, isn't it?

Dr. BARGER. That is correct, apart from the fact that——

Mr. FITHIAN. I am trying to account for all these extra dots, because to the average person looking at that, it looks like there are 15 different shots and obviously that is not the case. We are trying to match up signals from repeated tests, and your verifications come up with four of those being possibly correct, and you eliminate one as being highly improbable.

Dr. BARGER. Yes.

Mr. FITHIAN. But the other three are all from a Mannlicher-Carcano shot from the window into the target.

Dr. BARGER. Yes.

Mr. FITHIAN. As you move on over about 1½ seconds we see another group of shots which you have marked with a red circle.

Dr. BARGER. That is correct. These are marked here and listed in this table.

Mr. FITHIAN. As I take it, there are possibly four matches in that area. You have ruled out the one from the knoll at the target No.

The remaining four, again, are fired from the same place, the only difference being that two of them are with the muzzle withdrawn and two of them are with the muzzle at the plane of the window.

Dr. BARGER. That is correct.

Mr. FITHIAN. So, again, then we are not really talking about a different variety of shot impulses on the original tape. These are not impulses you put on the test tape because you fired several times, isn't that correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. And the reason they show up at that time frame match would be because on the original tape that is when the second shot was fired. Is that correct?

Dr. BARGER. That is very close to correct. These indicate where on the original tape is the pattern of impulses that looks like the test shots.

Mr. FITHIAN. Now you are aware that the FBI test firing by the expert indicated you couldn't fire the Mannlicher-Carcano more rapidly than 2.25 or 2.30 seconds. That much time had to separate shots. You are aware of that testimony in the Warren Commission?

Dr. BARGER. As it turns out—I am aware of that and was. However, I had no reason to put high reliability on that, and I could not allow that to influence the interpretation of the results.

Mr. FITHIAN. You are saying—with your careful scientific analysis of this tape—saying the first two shots are 1.6 seconds apart; is that correct?

Dr. BARGER. Yes; I felt confident in ruling this one out, because I was certain there was no motorcycle going 55 miles an hour. On the other hand, the fact that all of these correlations came up 1.6 seconds later is the way the test developed, and that is the result that was obtained.

Mr. FITHIAN. I want to make sure I also understand, when you look down in that lower left-hand corner, near the red circle, you have two dots below and two dots roughly above the imagined track of the motorcycle, but, again, during the same time frame—from here it looks like that might not be the case—with the upper right-hand matchup in that group of four; is that correct?

Dr. BARGER. Would you repeat that again?

Mr. FITHIAN. In the vicinity of the red circle for shot No. 2——

Dr. BARGER. Yes.

Mr. FITHIAN [continuing]. Two shots just below represent the same time frame.

Dr. BARGER. Exactly.

Mr. FITHIAN. You had to space it that way.

Dr. BARGER. That was artistic license; that is right.

Mr. FITHIAN. Now, if my eyes do not deceive me, the one immediately above that is also on exactly the same time frame, that 1.6.

Dr. BARGER. That is correct.

Mr. FITHIAN. The fourth shot up and to the right, does that not represent a different time frame?

Dr. BARGER. This is the fourth detection, not the fourth shot.

Mr. FITHIAN. I am sorry. The fourth detection.

Dr. BARGER. Of the four we have discussed so far.

Yes. That one is this one. In other words, four of the matches in this segment of the tape which I have listed here as occurring at this time, were one, two, three, four, those all match at exactly the same place in the tape.

Mr. FITHIAN. And you eliminated the highest, the one clear up at the top next to the limousine, because that would make the motorcycle going 100 miles an hour?

Dr. BARGER. Yes. For a reason wholly unrelated to the evaluation of the test.

I don't know whether there is another question remaining.

Mr. FITHIAN. I am wondering if any of the rest of those four down there are clearly false alarms.

Dr. BARGER. I don't have any good indication that any of them are.

Mr. FITHIAN. If I am not mistaken, the upper right-hand one of those four is beyond the 2-second time limit on your linear scale at the bottom; is that correct?

Dr. BARGER. That is correct. This particular match occurred at a different time than the other four. This one occurred at a slightly later time. It achieved a rather high value above the threshold of the cross-correlation coefficient, but it did it in a way that was unlike any of the other 14.

The early echoes in that particular pattern didn't match with anything. It was all the later ones that matched. Therefore, the first match that was actually achieved in the echo pattern did not correspond with the leading edge of the echo pattern. In a sense, it is conceivable the leading that edge of the echo pattern could have been obliterated at that time by transmission from another motorcycle, or whatever. That would explain why its leading edge was off and its timing was bad. I included it in the results of the tests because objectively it had, in fact, exceeded the threshold of 0.6.

Mr. FITHIAN. Now, move to the third, which would be your green dot, or green matchup. That is the one that is 5.9 seconds later, or whatever the time is Mr. Cornwell.

Now, am I not correct in visualizing that all three of those matchups are exactly on the same time frame?

Dr. BARGER. That is correct. All three of those occur at the same time, 145.15 seconds after the microphone button is stuck.

Mr. FITHIAN. So am I correct in assuming that if we are to discard that shot altogether or that echo pattern altogether, we are to discard all three of those despite the fact that you have three matchups on exactly the same time frame?

Dr. BARGER. I am not sure I understood that.

Mr. FITHIAN. Vertically. In the third verticle.

Dr. BARGER. These three?

Mr. FITHIAN. Yes. Those matchups occur from some kind of an impulse that goes at exactly that time; is that correct?

Dr. BARGER. That is correct.

Mr. FITHIAN. So if we are to return to the three-shot theory, which has been existing for 15 years, we must reject all three of these as being false alarms of some sort; is that correct?

Dr. BARGER. No; that is not correct. Or if it is true, I don't know why.

Mr. FITHIAN. If there are only three shot impulses on that tape I got from the Dallas police force, and we all agree one of them is down in that blue circle and that caused all those matchups as No. 1, and we agree there are three matchups that are very close to the red circle for No. 2, that accounts for two shots.

Dr. BARGER. Yes.

Mr. FITHIAN. Then if we are going to accept the final series as the head shot—that is the one you have in black clear up the linear scale—if we are to reject an intervening shot, whatever the number is, we have to say that all of the matchups on that time are false alarms.

Dr. BARGER. Yes, that is correct. If that were to be rejected for any reason, then all of those at that time would have been false alarms, that is correct.

Mr. FITHIAN. You said you didn't prove we had four shots and I was trying to eliminate one. There are four time line groupings that indicate four shots, so we have to do something to eliminate one of the sets of impulses which are line up on that vertical. Am I on the right line?

Dr. BARGER. If there were in fact three, it would be necessary to identify either this one or both of these, or four of these, or three of those as false alarms. There are other possibilities. Because of sound we have found no evidence of more than four, but we have found there may be four and if there are they occurred with this time sequence.

Mr. FITHIAN. Congressman Edgar calls my attention to the fact that in the third sequence, the one we just referred to now, the green sequence, that one of those is from a shot fired at target No. 2.

Dr. BARGER. Yes, that is correct.

Mr. FITHIAN. If we match up the Zapruder film, it seems rather unlikely since the limousine is on down the way a little further than that.

Dr. BARGER. The target location is one target location removed but that is not a very large difference.

Mr. FITHIAN. I think that is all the questions I have on that particular chart.

Did you and your team reconstruct for the committee the sound of the gunshots as they would have been heard if in fact we are to accept this final chart with four impulses? Do we have a sound reconstruction of that?

Dr. BARGER. Mr. Robinson has prepared a tape spliced up of the four test shots that were representative of the four possible locations where there might have been shots and I believe he is prepared to play that.

Mr. FITHIAN. If the Chair would permit, I would like to have it played.

Chairman STOKES. You may proceed.

Mr. CORNWELL. Mr. Chairman, we might identify it for the record as a tape recording, JFK exhibit F-353 and we would like to have it admitted into evidence.

Chairman STOKES. It will be so identified and so ordered.

[Tape recording played for the committee.]

[JFK exhibit F-353 is retained in committee files.]

Dr. BARGER. I think it would be appropriate for me to tell you where those sounds are recorded.

That was microphone 5. If we can see the exhibit that has the map of Dealey Plaza—

Mr. FITHIAN. I believe it is JFK exhibit F-337. I have one last question on that any way.

Dr. BARGER. What you just heard were the sounds picked up at this microphone of shots fired from here, the first two; one shot then fired from here, followed half a second later by one shot from there.

Mr. FITHIAN. Could you point to the place on the street where the motorcycle would have been located when the third of those impulses or shots were recorded?

Dr. BARGER. Yes. The estimate of the motorcycle position that we achieved by this test placed it 120 feet behind the Presidential limousine. Given that the Presidential limousine was just short of frame 313 at the time of the fourth shot, the position of the motorcycle was then 120 feet behind it at this position.

In fact that green dot represented the estimated position of the motorcycle at the time of that third impulse that we detected that might be the knoll shot, in fact. The black dot here represents the position of the motorcycle where it would have been at the time of the fourth impulse that we identified as a possible shot.

Mr. FITHIAN. Thank you. I have one last question having to do with the authenticity of the tape itself that you worked with. I am sure that many will want to know whether or not there is internal evidence or otherwise that can attest to the fact that the tape which you were working with—that is, the original tape you were working with—was indeed a tape of the shootings in Dealey Plaza on November 22, 1963. What information can you shed as to your best judgment as to which tape you were working with?

Dr. BARGER. In the first place, the tapes that we received from the committee staff were represented as being that. However, at a different time we received a Dictabelt, which is a plastic continuous blue colored belt that was marked as "Being recorded from Channel 1" in a white marking pencil.

Channel 1 of the Dallas police tape on November 22, 1963. We obtained a rebuilt Dictabelt recorder, newly rebuilt, and we played that Dictabelt and made our own magnetic recording of the Dictabelt. We then analyzed this middle segment around 12:30 of that recording that we had made from the Dictabelt on the same computer and in the same way that we had the first one and had it print out a record, a wave form record. We compared the two and found them to be identical in virtually every detail.

Mr. FITHIAN. And, the appearance of the Dictabelt, was there anything there that would indicate anything to you?

Dr. BARGER. It had the appearance of having been played a great deal and being quite old. The margins of the belt were cracked and it was necessary to tape them together to prevent further deterioration in the plane.

Mr. FITHIAN. Are you satisfied from a scientific analysis and in the way you have described it carefully this morning, that this particular recording passed all of your six screening tests; that you are indeed working with a recording of Dealey Plaza, November 22, 1963?

Dr. BARGER. Yes. The likelihood that the shape of the patterns that we achieved correlations on having come from some other source, seems extremely remote to us.

Mr. FITHIAN. I would ask staff counsel Cornwell whether or not you have additional information on the chain of custody.

Mr. CORNWELL. We do have additional information, Congressman. We had obtained the tape recording and Dictabelt originally from Mr. Paul McCaghren, who is now a retired member of the Dallas Police Department. We know the details of the story that we received at the time we got the tape from Mr. McCarran. He is here today. I can either summarize for you the information he has

provided, or he is available and if the committee so desires, he could testify as to those facts himself, at your convenience.

Mr. FITHIAN. Mr. Chairman, I would not want to interrupt the committee's questioning of the witness now on the stand, but I would ask that immediately upon conclusion of this we bring the witness forward who can attest and I think probably very briefly but certainly as to the chain of custody. I think it is very important that we do this.

Chairman STOKES. The Chair will be glad to entertain that.

Mr. FITHIAN. Mr. Barger, I certainly want to thank you for your answers and your insight and I would appreciate your final collective judgment as to whether there are three or four impulses on that tape that could represent gunshots?

Dr. BARGER. We have endeavored, Mr. Fithian, to make as powerful a detection test as we could devise and to lower the acceptance threshold of those matches that passed the threshold so that all likely correct detections would emerge. In so doing, we found that the process had sufficient noise in it that some of the detections that passed our threshold are false alarms.

We believe that the chances are very high that we have in fact located the motorcycle and, of course, that was done by matching sounds of gunfire. Therefore, to believe the probability that there were at least two shots is very high because it would take at least two to establish that pattern on the chart. You can't draw a straight line through one point.

The indication is that there are probably somewhere between three, maybe six additional false alarms that we cannot on our own information correctly identify as false alarms. Therefore, we think each of the detections that we have made is about equally likely to be a false alarm.

As there is only one detection remaining for the third shot—I don't remember what color it was, but it was the knoll shot, it is about equally likely that it is a false alarm. Therefore, it is about equally likely that there were three shots. However, there is an equal likelihood that there were four, and if there were, we have determined the time at which they occurred and, we also believe the location from which they came.

Mr. FITHIAN. If there were four locations from which they have come, it would have been where?

Dr. BARGER. They would have been those indicated in the chart that was up there a little while ago.

At the first time, all of the detections that were not clearly false alarms were fired from the Book Depository. At the second time, 1.6 seconds later, likewise those that have not been identified as clearly false alarms are from the depository.

At the third time, the one that is not disqualified by inappropriate motion of the motorcycle is from the knoll. At the last time, half a second later, those two nondisqualified detections are both from the Book Depository.

Mr. FITHIAN. Thank you. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The committee will now proceed on the 5-minute rule.

Doctor, I am going to ask that you replay the tape that you played a few moments ago. Prior to playing the tape, I am going to

ask you to tell us what we ought to listen for and ask you further tell us precisely what we should conclude from what we have heard.

Dr. BARGER. I wouldn't presume, Chairman Stokes, to tell you what you should conclude from anything.

Chairman STOKES. What do you conclude from what you hear as an acoustical expert and as a scientist?

Dr. BARGER. You are asking me my opinion of the sound of those shots now before they are played a second time?

Chairman STOKES. Yes.

Dr. BARGER. I just heard them for the first time in that order. Of course, I heard them singly several Sundays ago in Dallas.

[I really think my opinion about them is of no particular value. Professor Green, who will follow me, is an expert on how sounds affect people.]

I am more expert in how sounds affect microphones. I must say, when I just heard them it sounded like test shots that I heard several Sundays ago. Why don't we hear them again?

Chairman STOKES. May we have the tape played again, please? [Tape replayed.]

Dr. BARGER. Let me add all of the hissing noise you hear is necessary to make the impulsive sounds sufficiently audible because they are so brief that they have to be loud in order to be clearly heard.

Chairman STOKES. Now, you are in a better position to respond to the original question.

Dr. BARGER. I understand the question is, what do I think those sounds like, is that correct?

Chairman STOKES. In order to help me, when I listen to that tape and I come to a conclusion from what I appear to be hearing?

Dr. BARGER. I think not. The microphone is a device that accepts sounds from all directions with equal facility, whereas the human ear is not. The human can make a judgment about the directions from which the sounds arrive and this was not a stereo recording. We haven't been able to replicate the directionality of the sounds in the echoes, and therefore I just don't believe I can reach a meaningful conclusion about how those sounds should be interpreted.

Chairman STOKES. I am rather concerned about the 9-foot uncertainty which you ascribe to the location of the motorcycle. I believe that is your testimony, is that right?

Dr. BARGER. That is correct.

Chairman STOKES. In order to reduce or lessen the uncertainty with reference to the placement of the motorcycles, can you tell me to what degree you have studied the Zapruder film or any other film or to what degree you have studied photographs in order to reduce the uncertainty?

Dr. BARGER. I think the only way that photographs would be helpful would be to show where the motorcycle in fact was. I know of no such photographs at the time of the shooting.

Chairman STOKES. What I have in mind, Doctor, is with reference to the placement of the motorcycle because that is where the uncertainty comes. That is precisely where the motorcycle was in Dealey Plaza at the time each of the shots were fired, is that correct, and that is where the uncertainty comes in?

Dr. BARGER. That is where some of the uncertainty comes from. Chairman STOKES. You make an allowance of something like feet in terms of the uncertainty, is that right?

Dr. BARGER. We made an allowance in the correlation procedure to accept some uncertainty in the microphone location.

Chairman STOKES. All I am attempting to ascertain from you something to reduce or lessen that uncertainty as much as scientifically possible.

To what degree did you study any available photographs or film in order to try and make a more accurate placement of the motorcycle?

Dr. BARGER. Well, before we conducted the detection experiment we had absolutely no idea which motorcycle it was. We could look at motorcycles a lot and it wouldn't tell us anything.

After we did the detection experiment and then had the position of the motorcycle revealed to us, we found, in fact, that it appeared to be about 120 feet behind the limousine. We looked at the photographs available to us, to see if there were any photographs taken at the time of the shooting of that part of the motorcade about 100 feet back, and we found none. We have seen some photographs taken less than 1 minute before the shooting, and there are motorcycles back there, but there is so much time elapsed between the pictures and the time of the shooting, it wouldn't help us within 100 feet.

Chairman STOKES. My time has expired. The Chair recognizes the gentleman from Ohio, Mr. Devine.

Mr. DEVINE. Thank you, Mr. Chairman, and thank you, Doctor. I think you are a very patient man to go through all of this in that methodical detail as you have.

I have a couple questions as a nonscience layman. I would like to know what is your definition of a false alarm.

Dr. BARGER. A false alarm is the correct description in detection theory for an indication from your test that an event occurred when in fact it did not occur. Our test, which was a correlation detection test was set up to give an indication that an event occurred whenever the correlation coefficient exceeded 0.6. Every time that happens, there are two possible outcomes. One is, you have got the indication of the gunfire event when, in fact, there was a gunfire event at that time—let's call it a detection. The other possible outcome is there was not, in fact, a gunfire event at that time. That is called a false alarm. In other words, it is an error, a mistake.

Mr. DEVINE. Well, it either happened or it didn't happen. I suspect, when we are talking about either sound waves or whatever detection you are talking about. I was under the impression that might be a convenient way to eliminate the unexplainable.

Dr. BARGER. Unfortunately, there is no way to eliminate the unexplainable that I can explain. False alarms don't have to be hard to find. Some of our identifications of false alarm are easy, that they would require the motorcycle to fly all over the place. On the other hand, a false alarm can mimic a correct detection, and if it mimics it well, it is hard to identify as a false alarm. In fact, we present the results of our test in this way, with the hope that it will simplify the job, in the face of uncertainty, of the committee

consider other testimony that potentially verifies or refutes these findings.

Mr. DEVINE. I believe you said in your summary by your tests you have located at least two shots that were fired that were not false, and that there was an equal likelihood that there was a third or fourth shot. I mean it is likely that there was or wasn't a third and or fourth shot. Now, in listening to the recording which I have had an opportunity like all others here to have heard just twice it seemed to me as one who was in the past a fire-arms expert, having spent a lot of time on the range and recognizing rifle fire, my personal interpretation based on that tape that I heard that the first, the second and the fourth noises sounded to me quite a bit like a rifle shot, the third noise that immediately preceded the fourth sounding like possibly something else. I am not that sure, and I haven't had enough time to listen and study, but it brings me back to what you said earlier—I think it was brought out in Mr. Fithian's questioning that Secretary Connally couldn't possibly have heard the shot that hit JFK's head before the sound of impact when the bullet hit the head. To the contrary, he may have heard the head explosion before he heard the shot that did it. Isn't that likely due to his immediate proximity to the President, and the distance from which the shot was fired, the muzzle velocity, and so forth. Isn't it possible that he could have heard that head explosion prior to the sound of the shot that caused it?

Dr. BARGER. If he heard the impact on the head, he would have had to hear it first.

Mr. DEVINE. I don't know if you were here when he testified. But, he startled the room by clapping his hands on the sound that he thought was the head hit.

Dr. BARGER. Yes.

Chairman STOKES. The time of the gentleman has expired. The gentleman from North Carolina, Mr. Preyer.

Mr. PREYER. Thank you, Mr. Chairman.

Following up the comment of Mr. Devine about the sound of the shot hitting the President's head, that Mr. Fithian asked you about, one thing I would like to get the record clear on: I think you stated you had no opinion as to how a bullet would sound hitting the President's head, but can you say one way or the other that it would not be nearly as loud a sound as the sound of a rifle shot firing?

Dr. BARGER. I have here the sound of rifle shots. I haven't heard anything approximating that other event, and, therefore, what I am giving you is not an opinion based on scientific evidence; it is an off-the-wall guess.

I would imagine that the sound of an impact of that sort would not be as loud as a rifle shot.

Mr. PREYER. What I am getting at is, the last two patterns on the tape, the possible third and fourth shots could not possibly be (1) the rifle firing, and (2) the head exploding.

Dr. BARGER. Those events did not occur in that order; that is correct.

Mr. PREYER. In other words, nothing on the tape could possibly be an indication of the headshot sound?

Dr. BARGER. You could not interpret those sounds in that way, that is correct.

Mr. PREYER. We might have some confusion on that.

You mentioned at the end of your statement to Mr. Devine that the committee should view this as evidence, as I understood you to say, which potentially requires verification. Something to that effect.

Earlier my notes indicated you said something like this, "Since there are false alarms, we must examine the other evidence to see whether this corroborates it or not."

My question is, did you regard the evidence of your experiments here as what we would call in the law corroborating evidence only or would you consider it as direct primary evidence?

In other words, you seem to be saying that this is not like an X-ray, exactly, where you can see it and know it as a physical reality and a fact. But, that this is subject to errors, and subject to false alarms and that it should be used to corroborate other evidence which should not be used in itself to prove the truth of the statement it makes.

Dr. BARGER. I am not certain of the question, but I think you are observing that I said that the potential of the evidence that we are presenting, the test results that we are presenting, is as a potential corroborating force toward other evidence. It is also, of course, and if I didn't say this, I should have, a potential discrediting force when compared to other evidence. Is that what I didn't say that you think I should have?

Mr. PREYER. Well, I guess I am asking you how far the acoustic science has developed and the strength of the evidence of your test. That is, is it like a fingerprint that if it says one thing we know it is true and we disbelieve any contradictory evidence or is it a state that is still partly art and part science and that we should treat its results cautiously.

Dr. BARGER. The results of the test that I presented are—I have presented as objectively as I can—I indicate that it seems quite important that we can identify here and I have some of these detections that we achieved we can properly identify them as false alarms. I believe that the remaining ten or so are each about equally likely to be false alarms in themselves and I am required to say that by the uncertainty in the results and I am not sure that I am answering any question any more, and would you kindly help me by reminding—

Mr. PREYER. I think you have been conscientiously objective in understating rather than overstating. To put it in laymen terms, are you saying that it is about a 50-50 chance that there was a third and fourth shot?

Dr. BARGER. It comes down to that because the third shot indicated in green is supported by only one detection. Since I don't feel I can put more confidence in any single detection than I have indicated, the possibility of the third impulse pattern actually representing a shot is about even. Therefore, the question of four or three depends on that one detection. It comes down to what you said.

Chairman STOKES. The time of the gentleman has expired. The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. I think you may have just answered my question, Doctor, in your answer to Judge Preyer's last question to you. But, for the purpose of clarity, you have obviously made a judgment here with regard to the probabilities of certain indications on the spectrograph being what would appear to be gunshots.

Could you state for us what the probabilities are as for the first, second, third, and fourth sounds being gunshots?

Dr. BARGER. Yes, I will attempt that. Altogether I said the pattern of the detections that we achieved were tested statistically and found to be such that they would have arisen by chance only 5 percent of the time.

So I think therefore the probability that we have found at least two is very high.

Mr. DODD. What would you mean by very high? What are you talking about?

Dr. BARGER. I think I just said I meant 95 percent.

The necessity that others be accepted—

Mr. DODD. Would you try to speak into the microphone, Doctor?

Dr. BARGER. The requirement that a third one be accepted would be dependent on either of two of the detections standing up in the fourth area or three standing up in the first area, for example. Those are reasonably likely in the first case, less so in the fourth case because it has only two. An estimate on my part to state the probabilities, which you have asked about—and this is hard to do because I don't want to confuse the results of the tests as they stand. The probability that there are two that we have detected is 95 percent. The probability there are three that we have detected correctly is probably somewhere between 60 or 70 percent; the probability that there are four is lower than that, around 50 percent.

Mr. DODD. Thank you.

Could you indicate for me what effect the location of the targets has on the waveforms produced by rifle fire? Looking at JFK F-367, there are target locations that seem to change and I was trying to follow you as you were trying to identify false alarms and what you think may not be false alarms and correlating those to target locations. Is there a significant difference and, if so, in the third area—I guess that is green over there—could you indicate to me what the target location differences would mean there?

Dr. BARGER. I am not sure I understand that question.

Mr. DODD. Let me first of all ask you, does it make a difference?

Dr. BARGER. What target gave the correlation?

Mr. DODD. Target location.

Dr. BARGER. Yes.

Mr. DODD. How about the waveform produced by rifle fire?

Dr. BARGER. Yes. The exact location of the target has a different effect on the echo pattern depending on the location of the rifle, the target and the microphone.

If the rifle is pointing approximately 90° or so away from the direction between the rifle and the microphone, then the location of the target has very little effect because the shock wave radiated by the bullet which is dependent on which way the gun is firing, never reaches the microphone anyway.

However, if the target is in such a location that the shot passes near to the microphone on its way to the target, then a change in the target location is important because in that case the sound of the shockwave is in fact a part of the pattern.

Mr. DODD. Looking at the 145.15 second block—that is the green block——

Dr. BARGER. That is correct. That is green.

Mr. DODD. We have got two separate target locations there. Do you have that before you? Can you see that?

The first one as I can see it is the knoll; the second one is the School Book Depository, and the target location is 2. The third is Texas School Book Depository and that is in the first three, is that correct?

Dr. BARGER. That is correct.

Mr. DODD. Now, which of those did you exclude as a false alarm?

Dr. BARGER. The last two were excluded as a false alarm because they were detections made in microphones 7 and 8, which are about 60 feet away from microphone 4 where the other detection was made. It would have been necessary for the motorcycle to be speeding up in order to achieve that position in the time allowed and the sound of the motorcycle was in fact diminished all throughout that time.

Mr. DODD. I am sorry to ask you to repeat. If you accept the existence of a fourth shot occurring there in the black figures, then the third shot you would have to accept as the rightful location being on the grassy knoll?

Dr. BARGER. Well, under the presumption that you couldn't fire from the same place within a half second, that would be true. I think that is what you mean.

Mr. DODD. Thank you very much.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Connecticut, Mr. McKinney.

Mr. MCKINNEY. As I listen to your reenactment of the tape, there is a distinct difference between the third shot fired—not just a time difference, but a sound difference—between the third shot fired and the first, second and fourth.

Is my impression correct?

Dr. BARGER. It does sound different to me, yes.

Mr. MCKINNEY. It does sound differently to you?

Dr. BARGER. Yes.

Mr. MCKINNEY. Since that shot sounds differently and also is much closer to any other shot in time—at least from the reenactment—how can you be sure that particular shot is not a false alarm?

In other words, you have two shots, at least to my ear—and I know my ear is not very accurate—that sounded alike in the beginning and then you have a third shot followed almost immediately by another one in the reenactment. The third shot sounds quite differently. What is it about that particular shot that had you include it, in other words might have told you that it wasn't a false alarm or something else?

Dr. BARGER. Nothing has told me it is not a false alarm. The features of that shot that caused it to have been detected in the first place was simply that the pattern generated by it at that

microphone matched sufficiently well with the noise on the tape at that time that it was accepted as a possible detection. I don't know whether it is a false alarm or not.

Mr. McKINNEY. So then could I assume that the likelihood that if any of the four shots that we heard were false alarms, that you could presume more strongly that it is third one?

Dr. BARGER. I think you are looking for an indication of the power of the test to find a shot, given that one may be quite different than another, and would the different one be easier to find.

Is that the question, or am I completely off?

Mr. McKINNEY. I guess what I am really saying is that we seem to have three occurrences that are pretty similar—one, two and four.

Dr. BARGER. Yes.

Mr. McKINNEY. And we have a third that looks differently, and sounds differently. I was just questioning as to whether or not that was the one that you could presume was most likely to have perhaps been something else, or perhaps been another occurrence, or backfire, or something.

Dr. BARGER. I don't have the information to answer that. I don't know about other occurrences.

Mr. McKINNEY. Neither do I.

Dr. BARGER. But I do know about test shots fired in Dallas. All I can say is that particular sound on the tape sounded sufficiently like one of the test shots in Dallas to have scored above the threshold.

Mr. McKINNEY. But then if we were to accept that third shot as we heard it in the reproduction as a shot, it would have had to have come from the grassy knoll?

Dr. BARGER. That is correct. If it occurred, that is where it came from.

Mr. McKINNEY. Not to get back into the game of probabilities, which we already played down the line, would you consider—is your probability on the third shot the lowest of the group?

Dr. BARGER. Yes.

Mr. McKINNEY. Thank you very much.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Tennessee, Mr. Ford.

Mr. FORD. Thank you, Mr. Chairman.

Mr. Chairman, let me ask a question to you and to the staff at this point.

Dr. Barger mentioned earlier, when you questioned him, that they conducted an analysis of the police tape, and the tape that was done in Dallas with the experiment. Just which tape did we hear a few minutes ago?

Dr. BARGER. Was that my question?

Mr. FORD. I was asking—maybe the staff. Yes, I will raise the question to you.

Dr. BARGER. What you were hearing were the sounds of four of the test shots recorded in Dallas 3 weeks ago, or whenever.

Mr. FORD. The tape that we heard a few minutes ago—

Dr. BARGER. Yes, was prepared by splicing together four of the shots that were recorded during the reconstruction.

Mr. FORD. So we are not talking about the tape from the police motorcycle.

Dr. BARGER. Well, we were not listening to it; that is correct.

Mr. FORD. I was under the impression that we were listening to the tape from the police motorcycle of 1963, but we were not.

Dr. BARGER. No, sir. If it had been that distinct, we would have followed an entirely different detection scheme that would have been much easier to explain.

Mr. FORD. Let me ask you another question.

From what you said earlier, are you able to distinguish from which directions the shots came? I recall your earlier testimony regarding three shots and a possible fourth shot, and different directions.

Are you able to pinpoint that and, at the same time, unable to determine if there were three or four shots fired?

Dr. BARGER. Well, we can only imply the direction of the shot by the location of the target and the gun for the test shot that matched. In other words, each time we get a match between the noises, the impulsive noises on the Dallas police tape made during the assassination, and each time one of those noises correlates or matches with one of the echo patterns, we can only infer what the direction of the shot was by knowing what it was during that test shot. Otherwise—that is the procedure.

Mr. FORD. All right. I was reading here that the team of scientists headed by you concluded that a reliable and credible conclusion could be determined if they could test and analyze in three crucial areas.

When you appeared before this committee, however, you testified that you could not be sure whether there were three or four shots fired on November 22, 1963.

So, we are not able to pinpoint that at this time; is that correct?

Dr. BARGER. The results of the tests are inconclusive to the degree that I described them, I believe, when I was answering Mr. Dodd's question, or Congressman Preyer—I am not sure whose question it was.

There is uncertainty in the results, as I described it.

Mr. FORD. I don't have any further questions, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Pennsylvania, Mr. Edgar.

Mr. EDGAR. Thank you, Mr. Chairman.

Mr. Chairman, I have to admit that I am a little bit confused, and I would like to try to clarify some of what I have heard throughout today. Your testimony has been detailed. Let me just ask you this question.

Before you went to Dallas, before you went to Dallas to do the experimental test, you were more sure, I believe, of four impulses which you found on the original tape. That was one of the reasons why you came back to the committee to suggest that the test firings be held.

It seems to me that after the Dallas trip you seemed less certain of the four-shot indications that you received though the computerized acoustics. Why is that?

Dr. BARGER. Because the tests that I had performed at the time that I spoke to the committee previously were the screening tests

that I described today. These are very weak tests. It is not particularly difficult to pass them.

You recall they had to occur at the right time of day, they had to have the total timespan of 5 seconds or more, they had to have the right kind of distorted waveforms. There were six in total.

These were not very stringent tests. There were, in fact, four patterns, or four segments of the tape that had impulses on them that passed these weak, nonstringent tests.

The opinion that I intended to convey at that time was that I could not rule out that the impulsive events in these segments of the tape were in fact gunfire because they had passed those six screening tests.

On the other hand, I said there was no way I could be sure that they were because the data were so noisy and that there was no way I could be sure, unless I could find out what echo patterns were in fact generated by gunfire in Dallas.

I described that as a test that was the best one that we could conceive to determine whether those impulse patterns were in fact shots or not.

Mr. EDGAR. As I remember it, you had a long roll of paper that you rolled out across the table for us.

Dr. BARGER. Yes.

Mr. EDGAR. And you were able to indicate four patterns of blips on your computerized paper that indicated something occurred in those four timeframes.

Dr. BARGER. Yes.

Mr. EDGAR. Do the four timeframes that are on the weak evidence—that is, the pre-Dallas evidence—correspond to the timing, the minutes and seconds timing, that is listed alongside the four possible shots that you indicate in today's testimony?

Dr. BARGER. No. Of the four impulse patterns that I had originally described, the first three proved to give us detections in this matching test that we performed. The fourth did not. However, we got two in the third that I showed you that time.

In other words, my indication of the general areas that might contain matches with gunfire sounds were approximately correct, but not in detail.

Mr. EDGAR. Approximately correct, but not in detail. Was there one of those weak impulse areas that, after going to Dallas, you can discount as being a gunshot?

Dr. BARGER. Well, yes, I think I understand that question. I showed four segments of the tape that had patterns that I thought might be gunfire, because they passed these six screening tests, and the last of those four did not subsequently prove to contain any.

Mr. EDGAR. So that it was the third tentative weak gunshot that has now been divided into two possible gunshots?

Dr. BARGER. That is correct.

Mr. EDGAR. And you say it is a 50-50 chance that the fourth gunshot described up here is just a 50-50 chance; is that correct?

Dr. BARGER. That is correct. I have insufficient evidence to state anything stronger or weaker than that.

Mr. EDGAR. Is there any test that we could make that could reduce the uncertainty?

Dr. BARGER. Congressman, the answer to that literally is yes. Now that the position of the motorcycle has been fixed with some confidence one would not bother with microphones all over other parts of Dealey Plaza, for example.

However, I believe that the advantages to be gained from rectifying that problem are very marginal, and I doubt if they could reasonably be expected to improve the level of uncertainty in the test.

Mr. EDGAR. When I go home to explain what I have heard today to my 11-year-old son, who is in the seventh grade, what do I tell him?

Dr. BARGER. How much time do you have? [Laughter.]

Mr. EDGAR. I have all of the evening dinner to explain to him what I heard. I am just trying to get it into a language that I can communicate with him.

Dr. BARGER. That is a good question. I think the answer would go something like this.

There was, by a considerable measure of chance, a motorcycle in the motorcade with its radio in an operating condition, but with the motorcycle policeman not speaking into it.

The motorcycle was just moving. Over that radio were heard a series of sounds, including the motorcycle, including other radios, and including the possibility of the sounds of the assassination of the President.

What you were observing today was the description of a test that was made on that tape to see if it was statistically likely to have contained the sounds of gunfire.

You found out that it was possible from this test to locate the position of the motorcycle with a good deal of confidence 15 years later. It turned out that the motorcycle was about 10 feet short of the corner, at the approximate time of the first gunfire, when the motorcycle noise in fact was observed then to abate, and the man slowed down.

You found also that motorcycle was in a position, found to be in a position, when the first shot was heard, that corresponded to the limousine being in the position where it was at approximately the time of the first shot.

For these reasons and others that I have described, there is good confidence that the motorcycle has been found. Therefore, good confidence that some of the shots have been correctly detected.

There is less confidence in questions of increasing detail, and I hope he enjoys the story. [Laughter.]

Chairman STOKES. The time of the gentleman has expired.

Mr. EDGAR. Thank you.

Chairman STOKES. The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. I have been following the testimony reasonably closely, but I am somewhat perplexed.

You actually caused these shots to be fired in the same environment as the other shots were fired, with the same echoes and refractions and reflections and whatnot. So, you have a known—namely, your own—recording of what you knew were shots.

Now, were you able then, by comparing that to your oscillographic pictures of what was on that tape, to say what was on that tape were or were not shots?

Dr. BARGER. Was able to——

Mr. SAWYER [continuing]. Determine whether what was on that motorcycle tape originally were or were not shots, these disturbances?

Dr. BARGER. We were able to determine that with considerable uncertainty that I have described.

Mr. SAWYER. You were not, then, able to determine at least to the point of forming a scientific opinion that those were shots?

Dr. BARGER. It is my judgment, our judgment, the judgment of the team that did this study, that we have detected with about 95 percent likelihood, at least two of them, and on down the scale that I described for Congressman Dodd or Preyer—I still can't remember which.

Mr. SAWYER. You have described now a number of times these probabilities. But let me ask you this.

I am not an expert, and no one else on this panel to my knowledge is, certainly in this type of thing. You have had a chance now to conduct the test, to examine the tape, to examine the results.

Do you have an opinion yourself, aside from any other evidence, based just on your tests of this tape, do you have an opinion as to whether there were three or four shots fired?

Dr. BARGER. I have gone to some pains to present my opinion. I believe that I have presented the results of this test as clearly as I know how.

Mr. SAWYER. I understand all that, but now you have explained the pros and cons of the test. But laying aside any other evidence, you have now conducted the tests, and you have looked at the oscillograph of this motorcycle tape.

Now, do you as a professional in this area have an opinion as to whether or not there were three or four shots fired?

Dr. BARGER. Congressman, I can't add any information by saying I think there are three or four. I believe the results of the test do not allow me to state with greater certainty than I have, the answer to that question.

Mr. SAWYER. Well, then all I can say is I would hate to civilly sue anybody, let alone prosecute anybody, on this kind of evidence.

Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

Doctor, let me go back for a moment and try and clarify something.

It appears to me that in answering both Mr. Dodd and Mr. Sawyer, when you make reference to the probabilities, that you group the four shots in terms of the probabilities. When you say that two of the shots, the probabilities are 95 percent; three, the probability is 60 to 70 percent; and that the fourth is approximately 50 percent.

Would you please individualize for us, and tell us which are the two where the probabilities are 95 percent, which is the one which is approximately 60 to 70 percent, and which is the one that is 50 percent.

Dr. BARGER. Congressman Sawyer isn't going to like this answer, but the probabilities that I gave you are based on not distinguishing which three, which two. In other words, the high confidence

that we have is based on the high degree of order in the detections, and that can be established by two, any two.

Mr. SAWYER. Let me say I anticipated the answer, Mr. Chairman.

Dr. BARGER. If I might indicate possible mitigating circumstances for Congressman Sawyer, I do believe that even with this level of uncertainty, it is quite important to know when they occurred, if they did.

I can see that Congressman Sawyer is not convinced of that.

Chairman STOKES. Let me ask you this. I would assume, then, from your former answer, that you are unable to identify what shot or impulses represented the grassy knoll shot or impulse?

Dr. BARGER. I think not. I don't believe that is a correct interpretation of the results. If the shot at that time, 7½ seconds, indicated in green, stands up, then it was from the grassy knoll—it would not have been from the Depository.

Chairman STOKES. Now, I understand from your previous testimony that the shot which you simulated in Dealey Plaza from the grassy knoll was with a .32 revolver, or a .38?

Dr. BARGER. Well, the one with a pistol, yes. There was also a rifle fired from there.

Chairman STOKES. Simultaneously, or separately?

Dr. BARGER. No, separately. The tests included separate and distinct shots from rifles and from pistols, from the knoll.

Chairman STOKES. Well, with reference to the pistol, what caliber was that?

Dr. BARGER. .38.

Chairman STOKES. .38. And that is a subsonic or supersonic type of sound that emanates?

Dr. BARGER. The particular charge in the bullet used made it a subsonic projectile.

Chairman STOKES. The composition of the bullet gave you a supersonic result.

Dr. BARGER. I am sorry. Yes, we were firing a subsonic projectile from that pistol.

Chairman STOKES. All right.

Now, is there a different type of acoustical representation that you will get depending upon whether it is subsonic or supersonic?

Dr. BARGER. Yes, there is. That is why we also fired a rifle from the knoll because it has a supersonic projectile.

Chairman STOKES. I see. So that in terms of the simulation, and in the absence of any real knowledge as to whether a subsonic or supersonic type of firing came from the grassy knoll, you are unable, with any real degree of certainty, of being able to say that is in effect a real simulation, aren't you?

Dr. BARGER. If that one should stand up, that shot from the knoll matched with a rifle shot, and not a pistol shot. The match achieved with the pistol shot was very poor.

Therefore, it is possible with confidence to distinguish on that point, and it would appear that there was not a subsonic projectile fired from the knoll.

Chairman STOKES. I just have one further question.

With reference to attempting to simulate the scene as you did, to what degree did the lack of a crowd such as there existed on that particular day in 1963 affect your simulation?

Dr. BARGER. Well, it affected it very little because the sounds that are scattered from a person are of the sort that I described earlier today, as scattered sounds. This is the weakest form of redirecting the sound from a source and into a receiver.

Our thresholding procedure, which eliminated all of the weak sounds, both in the test pattern and in the police tape, was designed to eliminate the contribution of weak echoes such as those due to the presence of people.

Chairman STOKES. I see.

My time has expired. Other members seeking recognition?

The Chair recognizes counsel, Gary Cornwell.

Mr. CORNWELL. We have to leave you in a few moments, I am sure, Dr. Barger. We want to take away from your presentation whatever we can of a constructive nature.

You made a statement informally to me last evening which I think you mentioned previously in your testimony, but nevertheless, it might merit further explanation for just a moment.

That, as I recall, was to the effect that a scientist such as yourself can basically give us the data, and can to a limited degree provide us some insights about the probabilities of any one aspect of the data occurring by random chance, but that once you present us with the data, it is the committee's problem then to decide how to interpret it in the end.

Is that correct?

Dr. BARGER. That is correct.

Mr. CORNWELL. From your point of view, then, all you can do to help us unscramble the chart is to tell us what a mechanical, numerical calculation of some type, how it comes out, with respect to the random chances of various events occurring.

I take it there is no probability which will tell us how many shots occurred, or which were the real ones and the wrong ones in the end. Is that correct?

Dr. BARGER. None that I know of beyond what I have mentioned.

Mr. CORNWELL. All right. So what we must do, then, is take the data and see what external corroboration or impeachment can be applied to it.

Dr. BARGER. That is my view, yes.

Mr. CORNWELL. Just so that we understand what help you can provide us in that task, I would like very quickly to run through the chart and use it with some hypotheticals out of it. Let's talk about the top line of each of the four time segments.

In the first time segment, the top line is in microphone array 2-5, a shot from a TSBD, down toward target 1.

The second shot, the motorcycle's apparent location is moved from mike 2-5 to 2-6, slightly up the street, another shot from the TSBD, down to the street and the target, somewhere in the motorcade.

The next one, picked up with the microphone again slightly further down the street, a shot from the knoll, out to the motorcade.

Finally, another shot from the TSBD, motorcycle again slightly further down the street, pointed at the motorcade.

With respect to each of those four possible shots, apart from any probabilities, independently, we might say, they each occurred at

the right time of the day, they each were unique in the data overall that you analyzed, they each occurred within a time span which did encompass at least 5 seconds, the shape of each of the impulses was what you would expect, the amplitude was roughly what you would expect, and the number of impulses or echo patterns in each were what you would expect from the geography of Dealey Plaza, is that correct?

Dr. BARGER. That is correct.

Mr. CORNWELL. With respect to each one, the strict probability that that one would have occurred on that tape through some random sound source would be identical, individually viewed; that is .08, .08, .08, and .08. Correct?

Dr. BARGER. Well, the correlation coefficients were all .08, that is a fact.

Mr. CORNWELL. The tape on which each of them appeared is, to the best of your knowledge, a genuine tape made in Dealey Plaza on November 22, or from transmissions from there on that date?

Dr. BARGER. That is correct.

Mr. CORNWELL. Each of those four items appear very close, near to the line which you would expect the motorcycle to be traveling; in other words, the rate that it would travel down the street in the procession at approximately 11 miles per hour.

Dr. BARGER. That is correct.

Mr. CORNWELL. And independently we do know that there were shots fired in Dealey Plaza on the day at about the time that these impulses occurred on your tape.

Dr. BARGER. Correct.

Mr. CORNWELL. Then it would be the committee's job to apply independent evidence for each of those as an equal chance of being a genuine shot, to determine if it is genuine or if it is not.

Dr. BARGER. That is correct.

Mr. CORNWELL. I have no further questions.

Thank you.

Chairman STOKES. Thank you, counsel.

The gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. One question, Mr. Chairman.

Can we say that the shots, as far as time sequence is concerned, that were fired in Dealey Plaza at any time during that stuck microphone, any time during that time frame, had to have occurred at the following relative sequence: The first shot as zero, the second 1.6 seconds later, the third 5.9 seconds later, or at about 7.5 seconds after the zero time frame, and the fourth .05 seconds later, or at just shy of 8 seconds in the time frame?

Dr. BARGER. That is correct.

Mr. FITHIAN. There is no other acoustical disturbance of the tape that could possibly be a gunshot?

Dr. BARGER. We believe that the threshold that we set was low enough to accept all actual occurrences, and there were none other than those you just described, that is correct.

Mr. FITHIAN. If, therefore, there were any shot that did not match this time sequence—well, to put it the other way around, there could not have been definitively, could not have been a shot in this time frame that did not match one of those four interruptions?

Dr. BARGER. That is correct.

Mr. FITHIAN. Thank you.

Chairman STOKES. Dr. Barger, at the conclusion of any witness' testimony before this committee he is entitled to a period of 5 minutes under our rules in which to explain or amplify, any way expand upon his testimony.

I would like on behalf of our committee to extend 5 minutes to you at this time.

Dr. BARGER. Chairman Stokes, I thank you for that. I suspect that everyone has heard quite enough of me today, and I will respectfully decline to speak at any greater length.

Chairman STOKES. You have had quite a lengthy day here with us. It has indeed been a real experience for us, in not only working with you today, but previous occasions we have had to be with you, and to discuss the matter which we assigned to you for your investigation and analysis.

It has indeed been a pleasure to work with you and to have had the benefit of your testimony here today. On behalf of the committee, we thank you for having appeared here with us. You are excused, sir.

Dr. BARGER. Thank you, sir.

Chairman STOKES. At the request of Mr. Fithian, the committee at this time calls Mr. Paul McCaghren.

Mr. BLAKEY. Mr. Chairman, before Mr. McCaghren is interrogated by the committee, it occurred to me that it might be appropriate to clarify the record on one point.

Much of the emphasis of the committee's testimony has focused on the validity of the third shot in an effort to establish whether there were three or four shots. There is a time span between the first and second shot that I believe was identified by Dr. Barger as approximately 1.6 seconds.

The issue that I would like to bring to the committee's attention is that the existence of the expert FBI testimony indicates the minimum time in which a Mannlicher-Carcano could be operated and correctly aimed was stated twice in the Warren Commission's hearings, once by Mr. Fraser, as a minimum of 2.3 seconds. He said that was "as fast as the rifle could be operated."

Mr. Shaneyfield, at a subsequent point in the record, indicated that his study indicated that the minimum the rifle could be fired was 2.25 seconds, "for two successive well-aimed shots."

The committee staff has systematically made an effort to reexamine each of the underlying premises in the investigations that have preceded us, as that seemed to be the proper thing to do.

When the staff learned that the time differential between the first and second shot was 1.6, and thus well below what the FBI testimony had indicated was possible for one person using the rifle, it obviously raised the specter of two gunmen. Consequently, preliminary tests were undertaken to evaluate the validity of that FBI conclusion. I would like to report to the committee at this time the preliminary results of those tests. I would emphasize, too, that those tests are an ongoing proposition, and the final results will be given to the committee at a later point in time.

The staff, on a preliminary basis, conducted a series of tests at the Lorton firing range under the supervision of Cecil Kirk, of the Metropolitan Police Department.

We learned that it was possible for a relatively untrained individual to operate a Mannlicher-Carcano in considerably less than the time stated by the FBI.

One test resulted in one hit out of three at 150 feet in average times of 1.65 and 1.75. That is considerably under the estimate by the FBI.

A second test performed by another individual, who informs the staff he has not used a rifle in 25 years, was able to hit three out of three in a human silhouette at 150 feet in 2.125 and 2. Again, considerably under the FBI data.

I bring that information to the attention of the committee in order that an improper inference not be drawn from that aspect of Dr. Barger's testimony that deals with the time span between the first and second shot.

As you indicated in the beginning of this hearing, all of the evidence is not yet in.

Another area where the committee will obviously have to take evidence is on the minimum time required for the operation of a Mannlicher-Carcano.

If I may summarize, it would seem that the prior assumption, the one employed by the FBI as well as the Warren Commission, of a minimum of 2.25 or 2.3 is questionable, and it will have to be reexamined by the committee before a final interpretation can be made of the time span between the first two shots.

Mr. DODD. Mr. Chairman, could I address a question to Mr. Blakey.

That test that we are performing now, is that being done with a Mannlicher-Carcano?

Mr. BLAKEY. Yes. The committee is in the unique position for a congressional committee in that it now owns two Mannlicher-Carcanos.

Mr. DODD. Of the same?

Mr. BLAKEY. Of the same kind and style employed by Lee Harvey Oswald. I might add, Congressman—and I underline again its a preliminary judgment—the sharp difference in time may well be because the FBI experts were firing the rifle using the telescopic sight.

One clear implication of the expert testimony that this committee has received from its firearm experts is that the gun can be accurately fired using the iron sights, and the tests that were performed this last weekend used the iron sights and not the telescopic sights. Consequently, we were able, with very little effort, to sharply improve on the expert performance of the FBI.

Mr. DODD. Can you tell me whether or not the FBI used the alleged Oswald rifle?

Mr. BLAKEY. The FBI did use Oswald's rifle in some of its tests.

Mr. DODD. Is there some particular reason why we cannot use the same rifle?

Mr. BLAKEY. I am told by our expert panel that there is some concern about the use of Oswald's rifle. It has been in the Archives

for a considerable period of time, and it has not been given the kind of attention that a hunter might give to his favorite weapon.

There may be some question as to whether that weapon may be dangerous to employ in simulated tests now.

Mr. SAWYER. Would the gentleman yield?

On the firing—and I didn't examine closely that Mannlicher-Carcano that was here—is that scope so mounted that there is an option of using the iron sights?

Mr. BLAKEY. Yes.

Mr. SAWYER. So you can use either on it?

Mr. BLAKEY. You can use either the iron sights or the telescopic sights. The testimony, if you will recall, Congressman, of our ballistics panel, was that the choice that they would have made would have been to have used the iron sights.

What I might add is that the Dallas Police Department sharpshooters who fired the two weapons in our reconstruction in Dallas in fact used open iron sights, and they were extremely accurate at that time.

Again, Congressman, I emphasize these are preliminary tests and they will have to be perfected at a later point in time. It seemed to us, though, potentially not the best to introduce evidence and to simply allow the acoustics test to be considered without some clarification being made of that time problem between shots one and two.

Chairman STOKES. The committee calls Mr. Paul McCaghren.

Sir, will you raise your right hand and be sworn. You solemnly swear the testimony you give before this committee is the truth, the whole truth, nothing but the truth, so help you God?

Mr. MCCAGHREN. I do.

TESTIMONY OF PAUL MCCAGHREN, PAUL MCCAGHREN ASSOCIATES, DALLAS, TEX.

Chairman STOKES. Thank you. You may be seated.

Mr. Cornwell?

Mr. CORNWELL. Thank you, Mr. Chairman.

Mr. McCaghren, what is your present occupation?

Mr. MCCAGHREN. I am a private investigator and private security consultant in Dallas, Tex.

Mr. CORNWELL. You have your own firm, is that correct?

Mr. MCCAGHREN. Yes, I do.

Mr. CORNWELL. What is the name of that firm?

Mr. MCCAGHREN. Paul McCaghren Associates.

Mr. CORNWELL. Previously you were a member of the Dallas Police Force?

Mr. MCCAGHREN. Yes, I was.

Mr. CORNWELL. During what period of time?

Mr. MCCAGHREN. From 1953 until 1974.

Mr. CORNWELL. And during that period of time, what was your rank?

Mr. MCCAGHREN. I worked up from patrolman to detective in 1958. I was a lieutenant from 1960 to 1965 or 1966. I was a captain from 1966 to 1968. I was the director of the intelligence division in 1969. I was an assistant chief from 1970 to 1972. In 1972, I began to work my way back down. I was a captain, and I retired in 1974.

Mr. CORNWELL. Would you just give me a brief statement about what caused you to begin to work your way back down in 1972?

Mr. McCAGHREN. A strong disagreement between myself and the then chief of police. Unfortunately, he was the chief of police and he busted me. If it had been the reverse, I would have busted him. [Laughter.]

Mr. CORNWELL. Directing your attention to 1963, what was the specific nature of your assignment during that time period?

Mr. McCAGHREN. In 1973?

Mr. CORNWELL. 1963.

Mr. McCAGHREN. I was a lieutenant, burglary and theft at that particular time.

Mr. CORNWELL. During 1963 or 1964, during the period of time that the Warren Commission conducted an investigation of the assassination of President Kennedy, did you as a member of the Dallas Police Force also have any role in that?

Mr. McCAGHREN. Yes, I did. I was with a group of about four or five lieutenants; we were commissioned to conduct an investigation of the events occurring at that particular time.

Mr. CORNWELL. And particularly what were you investigating?

Mr. McCAGHREN. My particular investigation concerned the events that occurred in the basement of city hall, regarding Lee Harvey Oswald and Jack Ruby.

Mr. CORNWELL. And it was sort of a small special group that was working on that investigation, is that correct?

Mr. McCAGHREN. Yes, it was.

Mr. CORNWELL. In addition to the question of Jack Ruby's entry into the basement, were there other issues that that group worked on?

Mr. McCAGHREN. Several, yes.

Mr. CORNWELL. One of them perhaps being the shooting of Officer Tippit?

Mr. McCAGHREN. Yes, it was.

Mr. CORNWELL. In connection with that investigation, did the group have an occasion to gather evidence?

Mr. McCAGHREN. Yes, we did.

Mr. CORNWELL. At the termination of the investigation, do you know what was done with the evidence?

Mr. McCAGHREN. All the material in our possession was turned over to Chief Curry, who was the chief of police at that time.

Mr. CORNWELL. Would you just basically tell us what types of evidence would have been contained in the package at that point?

Mr. McCAGHREN. These reports were not in-depth investigations. We were trying to field the hundreds of calls that were coming into the police department at that time. It was a cursory type of investigation. It was called to an abrupt halt after about a month and a half. All of our reports were submitted to Chief Curry at that time.

Mr. CORNWELL. So the material, then, would have perhaps included such things as tape recordings of the Dallas dispatcher tapes during—

Mr. McCAGHREN. Yes.

Mr. CORNWELL [continuing]. November 22, 1963? I recall, for instance, there was an issue involved with the slaying of Officer

Tippit, of what was said that brought him into the area where he was killed; is that correct?

Mr. McCAGHREN. I am not that familiar with that particular aspect, sir.

Mr. CORNWELL. All right. At any rate, the materials would include interview reports and various other things; is that correct?

Mr. McCAGHREN. Yes, sir.

Mr. CORNWELL. Now, after the materials were gathered in the course of this investigation, and turned over to Chief Curry, when did you next come in contact with them?

Mr. McCAGHREN. I did not see the material again until approximately 1969. It was in 1969. Chief Batchler was then the chief of police. All of this material was found in a locked filing cabinet, in a metal filing cabinet, outside of his office.

He called me into his office and asked me how it got there. I did not know. I had not seen the material for years and years. He was very curious. Both of us were curious about how it got around to that particular place.

The filing cabinet had been abandoned and locked up. He had caused the lock to be broken. The filing cabinet had been designated to be disposed of. When he found the material, we reviewed the material. He gave the material to me.

His exact words were, "Take charge of the material. Make sure that no unauthorized person comes in contact with the material."

This is exactly what happened. I did take charge of the material. He was very concerned of the fact his predecessor had removed numerous articles from the police department—

Mr. CORNWELL. And who is the predecessor?

Mr. McCAGHREN [continuing]. And published this in a book.

Mr. CORNWELL. The predecessor you are speaking of is Chief Curry?

Mr. McCAGHREN. Chief Curry, yes.

Mr. CORNWELL. So the materials were found in a locked file cabinet outside of the current chief of police's office, which of course would have been the former chief of police, Chief Curry's office.

Mr. McCAGHREN. Yes.

Mr. CORNWELL. And you at that time were charged with the responsibility of safekeeping them; is that correct?

Mr. McCAGHREN. Yes; I was the director of the intelligence division at that time.

Mr. CORNWELL. What did you do with the materials to discharge at assignment?

Mr. McCAGHREN. At that particular time, I kept it in my office until approximately 1971, the latter part of 1971, early part of 72.

Mr. CORNWELL. And during that period of time, you had control of the documents; is that correct?

Mr. McCAGHREN. Yes, I did.

Mr. CORNWELL. Or the materials. In 1971, what happened?

Mr. McCAGHREN. An outside agency, a private agency under the guidance of—Chief Dyson, Assistant Chief Fulgum, and Assistant Chief Moore brought in an outside agency and permitted these people to go into our intelligence files.

They made pointed questions. They presented pointed questions to me about the absence of any files regarding the assassination. So, I just very quietly removed the files to my own private residence because I didn't trust the people.

I am talking about Fulgum, Dyson, and Moore.

Mr. CORNWELL. So you took the materials to your residence and stored them there; is that correct?

Mr. McCAGHREN. Yes; that is correct.

Mr. CORNWELL. And for how long a period of time did you maintain them at your residence?

Mr. McCAGHREN. Until 19—well, until this year. By chance I knew that one of your investigators had set up an appointment with a colleague of mine, and I asked to sit in on the interview.

When I was satisfied that he was who he said he was, then I told him that I had some material that he would be interested in, and sure enough, he was interested in that material.

Mr. CORNWELL. You turned over a great body of material to him. That was to Jack Moriarty; is that correct?

Mr. McCAGHREN. Yes; that is correct.

Mr. CORNWELL. And included among the material was a tape recording and a dictabelt tape which we have been discussing here today?

Mr. McCAGHREN. Yes.

Mr. CORNWELL. Now, throughout the period of time that the materials including the tape recording and the dictabelt were in your possession—in other words, continually from 1969, at which time they were removed from the locked filing cabinet—did you or anyone else tamper with the tape recording or the dictabelt?

Mr. McCAGHREN. No, sir. I had control of this property at all times, from 1969 until this year. No one, no one tampered with that material.

Mr. CORNWELL. Thank you. No further questions.

Chairman STOKES. Any members of the committee have any questions?

Thank you very much, sir.

Mr. McCAGHREN. Thank you.

Chairman STOKES. You are excused.

Professor Blakey?

Mr. BLAKEY. Thank you, Mr. Chairman.

As the testimony today has indicated, the committee has examined motion pictures for jiggle, and a tape for sound impulses in an effort to determine the number, time, and direction of the shots fired at President Kennedy.

The committee has also considered the testimony of witnesses to the assassination itself. Specifically, it sought to determine the extent to which ear-witness accounts as to the number and direction could be relied on.

For this purpose, the committee compiled all of the pertinent testimony taken soon after the assassination and had it subjected to psychoacoustical analysis, and all the testimony of 178 witnesses extracted from FBI reports and other Warren Commission documents stored at the National Archives were studied, and statistically charted.

In addition, the team that performed the psychoacoustical analysis went to Dallas to witness the live firing in Dealey Plaza described earlier here today.

The purpose was to listen to the shots and get an on-the-scene feeling for their possible source and their magnitude.

The chief scientist in the ear-witness project is Dr. David Green. Dr. Green is a professor of psychophysics and chairman of the Department of Psychology and Social Relations at Harvard University.

He received a B.A. degree from the University of Chicago in 1952, and from the University of Michigan he received a B.A. degree in 1954, an M.A. degree in 1955, and a Ph. D. degree in 1958.

He has been a professor of psychology at the University of California and an associate professor of psychology at the University of Pennsylvania, and an assistant professor of psychology at the Massachusetts Institute of Technology.

Dr. Green is the author of numerous scientific publications, and serves on the editorial boards of several scientific journals. He is a fellow of the American Psychological Association and the Acoustical Society of America.

Dr. Green is the chairman of the National Research Council Committee on Hearing, Bioacoustics and Biomechanics. He has received the Acoustical Society of America's Biennial Award and a Guggenheim fellowship. He was an overseas fellow at St. John's College in Cambridge, and in 1978 he was elected to the National Academy of Science.

At this time, Mr. Chairman, it would be——

Mr. FITHIAN. Would the gentleman suspend.

Just for clarification, Mr. Chairman, were we not going to ask a few questions of Dr. Hartmann, or does that follow this?

Mr. BLAKEY. My understanding is that Dr. Hartmann will be called back to the stand at the conclusion of Dr. Green's testimony.

Mr. FITHIAN. Thank you.

Chairman STOKES. The committee calls Dr. Green.

Doctor, will you raise your right hand and be sworn.

Do you solemnly swear the testimony you give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

Dr. GREEN. I do.

Chairman STOKES. Thank you. You may be seated.

The Chair recognizes counsel for committee, Lee Matthews.

Mr. MATTHEWS. Thank you, Mr. Chairman.

TESTIMONY OF DAVID GREEN, PROFESSOR OF PSYCHOPHYSICS AND CHAIRMAN OF THE DEPARTMENT OF PSYCHOLOGY AND SOCIAL RELATIONS, HARVARD UNIVERSITY

Mr. MATTHEWS. Dr. Green, would you begin by tracing the history and development of psychoacoustics in America?

Dr. GREEN. Well, the field of psychoacoustics I think, at least modern psychoacoustics, dates from the development of electronic equipment.

Certainly two key events were the laboratories at the Bell Telephone Laboratories, under Dr. Fletcher, as well as the laboratory of psychophysics at Harvard University, under Dr. Stevens.

At those laboratories, various experiments were performed in connection with how people hear, and concerned with devices related to how they hear, such as earphones, earplugs to protect the hearing, and the like.

The psychoacoustics lab during the Second World War was specifically charged with the problem of communications in airplanes and so they did a great deal of work on radio sets; microphone headsets, and so forth.

Mr. MATTHEWS. Would you give us some examples of how psychoacoustic analyses are conducted, and some of the conclusions that can be drawn from the experiments?

Dr. GREEN. I think probably most relevant to this committee would be a brief discussion how we, how people, localize sound in space.

For that purpose, a typical experiment would involve having two or more sources of sound and asking the subjects to differentiate and distinguish among the sources. So, we might sound one or another source and ask the subject to tell us which source was actually sounded.

You will note that in these tests there is an element of subjectivity; that is, the observer or witness is obviously being asked a question about what he experiences.

But I hope you also note that you can score these tests objectively; that is, you can actually find out whether he can distinguish between two sources located a few inches apart at a certain distance.

By varying the physical parameters of the situation—that is, the distance, between the sources; or their distance from the observer—by varying the composition of the sources—that is, the sound they make or their loudness—you can begin to understand how the subject localizes sound in space and study the variables that effect this sort of behavior in an objective fashion; that is, in a fashion that any other experimenter could presumably repeat.

Mr. MATTHEWS. Now, is that primarily a subjective test or are there objective aspects of it?

Dr. GREEN. Well, it is subjective in the sense that you use human observers and they make judgments. But your scoring of the responses is fundamentally objective; that is, we can all agree whether the subjects get the correct or incorrect answer. So in this sense it is objective.

Mr. MATTHEWS. Dr. Green, I want to call your attention to JFK exhibit No. F-364 that has previously been entered into the record in this case.

First, are you familiar with that exhibit?

Dr. GREEN. Yes, I am. I remember this morning's presentation.

Mr. MATTHEWS. Can you give the committee an explanation of how human beings recognize the sound of rifle fire?

Dr. GREEN. May I approach the exhibit, please?

Mr. MATTHEWS. Certainly. May I also refer to JFK exhibit No. F-357 previously entered and what has been identified as JFK F-363.

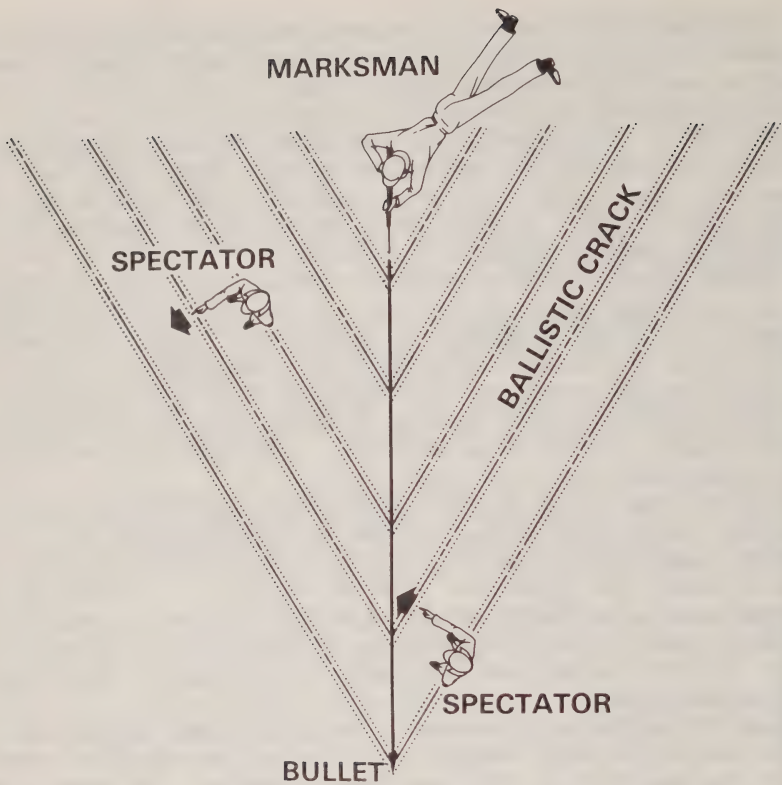
Dr. GREEN. I will try not to be too repetitious, but I would like to review just briefly several aspects of the situation that are pertinent to how subjects localize weapon fire.

As Dr. Barger pointed out this morning, this is the pressure wave, that is, this is pressure on this axis and this is time. When a weapon is fired, if it is a supersonic missile, then a shock wave is produced. That is this little N shaped blip. And then finally the muzzle blast comes in later which is the large explosive sound caused by gases coming out of the muzzle.

But the shock wave is of interest when you study the localization of sound because it causes confusion as to the locus of the sound in space. That is best illustrated on this exhibit where we have the file here at one instant in time. It has been fired and there is a bullet along this projectory, that has reached this point in space, as a result there is a shock wave or N wave that follows the bullet. There is also a blast wave traveling at the speed of sound away from the muzzle.

Now you should be familiar with roughly this sort of situation because if you will think of a boat traveling in still water, the surface wave is in fact or the bow wave of the boat is in fact like the N wave. The difference here is that this is a bullet going through air so this figure should be rotated completely around and there is really a cone that follows the bullet that creates the N wave. Meanwhile, the shot, the blast is expanding in a circle about the muzzle, at least in free space.

Now if you take an observer in this position on the path of the shock wave, the shock wave which is a cone in free space passes over the observer in this direction. Therefore, the sound that sweeps over him is essentially a plane wave. For example, if he is standing in this direction, it strikes both ears at the same time. [The information follows:]



JFK EXHIBIT F-363

Dr. GREEN. Therefore, the observer in this situation will tend to point at the path of the bullet and perpendicular to the N wave. This is illustrated in this figure where the marksman is here and the bullet being fired in this direction and these outer lines represent the N wave at successive instances in time and the spectators pointing perpendicular to the N wave and at the path of the bullet.

This is actually a fairly accurate representation of an experiment carried out by Dr. Garinther at the Aberdeen Proving Ground, and in his experiment, he had a group of subjects, about 30 or 40 subjects seated in an open field. The marksman was concealed in a truck and hence the blast wave was silenced effectively. He shot through a small opening in the truck and down a path. The observers sat in a row and they actually pointed exactly as you would expect from this diagram.

This diagram also points out that while 75 percent of the observers point in a perpendicular to the N wave, at the path of the bullet, 25 percent of the observers point in exactly the opposite direction. This is called front-back confusion because the sound waves hit both ears simultaneously it is awfully confusing and you can't tell whether the source is immediately ahead or immediately in back of you.

Mr. MATTHEWS. The Garinther test, and JFK exhibit No. F-363 are the exhibits you were referring to?

Dr. GREEN. I will have to look on the back to tell, but I think it was. Yes, it is F-363.

Mr. MATTHEWS. The other exhibit that you referred to earlier is JFK exhibit No. F-357?

Dr. GREEN. That is right.

Mr. MATTHEWS. That exhibit contained the drawing of the shock wave and the muzzle blast wave?

Dr. GREEN. That is correct.

Mr. MATTHEWS. Now what difference does it make in the position of the observer in determining either the origin of the shot or path of the bullet?

Dr. GREEN. Well, if the observer hears the blast wave as if he were located at a position here, this plane wave has an origin back here at the rifle. So he actually points at the source of the disturbance. If the observer does not hear the blast wave, if he localizes on the basis of the N wave, he actually points at the path of the bullet, not the origin, of the bullet, in a way dictated by this geometry, that is perpendicular to the cone of the end wave and toward the path of the bullet.

So, for example, if the marksman were up here in that corner [points at one corner of room] firing into that corner [the opposite corner] and we could not hear the blast of the rifle, that is, we simply heard the N wave, we would localize the source of the sound up in the ceiling.

Mr. MATTHEWS. You mentioned in regard to JFK No. F-363 that Garinther conducted an experiment in which the blast wave was concealed?

Dr. GREEN. Yes, the marksman was concealed in the truck. The blast wave was suppressed and only the N wave was evident.

Mr. MATTHEWS. Were any of the observers able to accurately pinpoint the point of origin for the gunman?

Dr. GREEN. No, they all either pointed along the path of the bullet, 75 percent of them, and 25 percent pointed in the opposite direction.

Let me make one other point clear if I can while I am at that diagram. That is, the relative contribution of the blast and N wave depends on where the observer is standing in space. If he is way down here along the path of the bullet, the blast wave is getting weaker and weaker but he is fairly close to the path of the bullet, therefore is little diminution in the N wave as it goes by. Because he is way down here in space there is a great difference in time between when the N wave passes and the blast passes so it is very possible in certain locations especially if you are located well down the path of the bullet, you hear the N wave and a long time later it is followed by the blast wave.

Mr. MATTHEWS. Is there any position that an observer can stand relative to the origin of the shot, where there is a greater possibility of being able to locate the shooter?

Dr. GREEN. Yes, if he is located here at the side, then the shock and the end wave and the blast wave arrive at the same time and he would point at the origin of the source, that is, the rifle in this case.

Mr. MATTHEWS. Can you give us some indication of the distance that the person would be from the origin of the shot, where they would hear the end wave first and then subsequently the blast?

Dr. GREEN. Well down the line of the bullet. If they are well down the line of the bullet, the N wave will sweep over them first and the blast will come in later and in that case it would be very probable that they point at the N wave and ignore the blast as an echo. If they are off to the side, they will undoubtedly point at the source of the muzzle.

Mr. MATTHEWS. Can you give us an opinion, based upon distance in feet, that the observer would have to be standing from the origin of the shot, to recognize the N wave and then subsequently recognize the blast?

Dr. GREEN. I can't give you exact data on that subject because I don't think it has been studied in that detail, but let me review the considerations that apply.

The further he is from the rifle and the closer to the bullet path the more the delay between the blast and the N wave.

So, for example, if he were 300 feet, down here, the blast would lag the N wave, and if he were very near the path of the bullet, the blast would lag the N wave by half that distance 150 feet or about 150 milliseconds.

In that case, it is very probable that he would hear the blast very distinctly as a second wave.

Mr. MATTHEWS. Mr. Chairman, at this time I move for the admission of JFK F-363.

Chairman STOKES. Without objection it may be entered into the record.

Mr. MATTHEWS. Dr. Green, are there distinct sounds between the sensations of the N wave that you have described as the shock wave and that of the muzzle blast?

Dr. GREEN. Definitely, and you can see some indication of how these might sound by just looking at the exhibit on the far right.

The shock wave is very brief and the muzzle blast is longer in duration. Therefore, there is a great difference in pitch. The N wave sounds much higher in pitch than the blast wave. We have a tape recording of those two waves. It is a recording of a Mannlicher-Carcano firing in which we have excised from the tape examples of the shock wave and the muzzle blast.

If I may, could I play those to the committee and let them hear the difference between the two sounds?

Mr. MATTHEWS. Yes, Mr. Chairman, at this time I would move for the admission of JFK F-351 and JFK F-352.

Chairman STOKES. Without objection they may be entered into the record at this point.

[JFK exhibits F-351 and F-352 are tape recordings retained in committee files.]

Mr. MATTHEWS. Dr. Green, would you explain to the members of the committee exactly what they can expect to hear from each of those exhibits?

Dr. GREEN. There are three blast waves, that is the larger wave in the far right of the exhibit F-364. They are played three times. They are followed after a brief pause by three examples of an N wave played at the same peak overpressure.

Now, the intensities that you will hear in this room are nowhere near the intensities that you would experience if you listened to actual weapons. So you should recall that they will be much lower in intensity than anything resembling rifle or pistol fire, but nevertheless there are recordings of these two wave forms, and if we can have them at this time, you will hear three blast waves followed by three shock waves.

[Tape recordings played for the committee.]

Mr. MATTHEWS. Dr. Green, I believe you were present when the tape recording was played of four shots that were fired in Dealey Plaza?

Dr. GREEN. I beg your pardon?

Mr. MATTHEWS. You were present in the room at the time of Dr. Barger's testimony when the recording was played of shots fired in the Dealey Plaza experiment?

Dr. GREEN. Yes; I was.

Mr. MATTHEWS. How were those shots different from the shots that you played today on exhibit JFK F-351 and JFK F-352?

Dr. GREEN. The most noticeable difference is that nobody jumped out of the room, and if rifle fire occurred in this room, I am sure everybody would have left their chair, at least slightly. They are extremely quiet compared to the shots that occurred in the plaza. But, I played them merely to illustrate there is a quality of difference in the sound produced by these two types of waves.

Mr. MATTHEWS. Were you able to distinguish and separate the sounds that you played on those recordings without the use of special equipment?

Dr. GREEN. I am unclear as to the question, I am sorry.

Mr. MATTHEWS. How were you able to obtain simply the blast itself on the recording?

Dr. GREEN. They were excised from actual rifle shots. We stood in a position where there would be a sufficient time difference between them and then cut them out of the tape and pasted them in the sequence that you heard them. So they are artificially prepared so that it would be clear that N wave and blast waves could be distinguished.

Mr. MATTHEWS. Dr. Green, I want to call your attention to JFK F-361 and ask you whether or not you recognize this exhibit?

Dr. GREEN. It is an aerial photograph of Dealey Plaza.

Mr. MATTHEWS. On August 20 of this year you had occasion to be present at the time of the acoustic analysis testing in Dealey Plaza?

Dr. GREEN. Yes; I and two observers went to Dallas and observed during the sequence of shots that Dr. Barger has already described. The two observers were Prof. Frederick Wightman, an associate professor of audiology in the Department of Communicative Disorders at Northwestern University. He has had considerable experience in the field of sound localization and has contributed many papers and literature on that topic.

The other observer was Prof. Dennis McFadden of the Psychology Department of the University of Texas at Austin. He also has a long history of research in the field of sound localization and has contributed many papers on that topic.

Mr. MATTHEWS. Now, the purpose of the three of you all being there primarily was to determine what the witnesses heard who had been spectators of the Presidential motorcade on November 22, 1973; is that correct?

Dr. GREEN. That is correct. We observed in several different locations within the Plaza and compared the apparent locus of the sound and blasts that we heard and attempted to correlate them with reports gleaned from the witnesses, after the assassination.

Mr. MATTHEWS. Dr. Green, I want to call your attention to JFK Exhibit F-344 and F-337, both of which have previously been entered into evidence and ask you to approach the podium and indicate the relative position where you and the observers stood during the experiment and the reasons why you selected that particular position.

Dr. GREEN. You will recall there were three sequences of shots that were going to be fired and for the first sequence we were situated about in this position on the grassy knoll, about halfway down the slope.

We decided for the first sequence that the observers would stay together, that is, I had them located about three feet from one another and as they filled out their responses to each of the test shots, I would check their responses to see to what degree they were consistent.

As a result of this first sequence it was apparent that they were very consistent and that we could gain more information by separating the observers. So for later test shots we observed some of the test shots together right under the Texas Book Depository in the second sequence. For the third sequence of shots Professor Wightman and I were situated down here and Professor McFadden was situated on the railroad overpass in about this position in this exhibit while the third sequence was fired.

Mr. MATTHEWS. During the course of the first sequence what degree of accuracy was there between the two assistants?

Dr. GREEN. There were 12 shots shown in the sequence, but because there were 5 test shots that preceded the sequences that were run off here, there was a total of 17 shots fired and the observers, Wightman and McFadden, they rated all of the 17 test shots, they were in agreement on 94 percent of their responses. Their locations were the same, their reports of reverberations were identical, and their reports of the loudness were virtually the same.

Mr. MATTHEWS. Did you know at the time the shots were being fired, what was the position of the rifle?

Dr. GREEN. I knew the key but even I was somewhat at a loss to know where we were within the sequence. Because there were test shots preceding the sequence and occasionally some of the shot would be refired because the recording equipment was malfunctioning or something and I was not in communication with anybody concerning the number of the sequence during the shots so they were essentially unaware of what shot was going to be fired next.

Mr. MATTHEWS. Would you explain to the committee exactly what they heard during the process of those tests.

Dr. GREEN. Well, they were seated here in the first sequence, for example, and the first shot would be out here on target one. And immediately thereafter they would write down where they thought

shot occurred, comment about any other apparent echoes or confusions that might have occurred, rate the loudness of the sound, and any other comments that they thought pertinent.

As I say, they agreed in that first sequence virtually 100 percent of the time. There was one shot that McFadden heard, it was the second shot No. 11 at target 3, and he localized that over at this old courthouse. If you draw the path of the bullet and point at the N wave, that would point at the old courthouse. That was the only response that McFadden differed from Dr. Wightman and the only place where he was inaccurate.

Mr. MATTHEWS. When each of your assistants stood in the assigned places, did it make any difference which direction they were facing at the time of the shots?

Dr. GREEN. Not so much in this position, but when you are situated immediately under the Texas School Book Depository, which was our general location for the second sequence of shots, the things are rather confusing.

First of all, the N wave comes right over your head so you tend to localize the source directly over your head or on occasion you don't exactly localize the source in whatever direction you were facing. You could, for example, move your head into different directions. I once looked down Elm Street in this direction fairly well convinced that the sound came from this direction, and the other observers did likewise, pointed their heads in different directions. I said that that influenced their judgments.

Also when you are in this location the sound sweeps down the building and the apparent source of the sound is rather large, probably because it scattered off the regular surface of the building. That was caused by the blast wave.

Mr. MATTHEWS. At any time during the testing did your assistants confuse the sounds of the N wave and blast with any sounds of echoes or reverberations?

Dr. GREEN. They certainly made some inaccurate responses. I would say in the order of 10 percent, and most of those could be accounted for on the basis of the confusion of the blasts and the shock wave.

On other occasions, for example, in this location where we are at a distance from the sixth floor window of the Texas Book Depository, and that was the source of the rifle blasts, it is fairly easy to hear both shock and blast waves. They occurred with sufficient delay from one another that Wightman, for example, would write down that the N wave appeared somewhere in the air above the knoll and the blast would come from the Texas School Book Depository.

Mr. MATTHEWS. Now what is it that you had your assistants identify, both the N wave and the muzzle blast or just simply the shot?

Dr. GREEN. They tried to report what they heard and also tried to make a guess as to what was the location of the actual weapon. In this case it was just very easy for Wightman to distinguish between the two so he kept writing down on his score sheet that the click, the N wave, appeared to have a locus somewhere over the knoll. Standing here the N wave was coming down and hitting targets here, or in the case of the Main Street shots, way down here,

so he would localize it up in space there. Then he would comment that in addition when the blast came in, it came from the Texas School Book Depository.

Mr. MATTHEWS. They were identifying each of the sounds that he heard?

Dr. GREEN. Yes.

Mr. MATTHEWS. It may have been two sounds—the muzzle blast—

Dr. GREEN. They also commented about echoes, et cetera. For example, in this position from the knoll, we were sufficiently close to the knoll, that we heard a very strong echo off the post office annex that came in about a second later. In this position you heard a very strong echo off the triple underpass and McFadden in this position heard the strong echo off this array of buildings along Houston Street.

Mr. MATTHEWS. Which of the assistants did you have standing in the area south of the TSBD Building, the grassy area right across from Elm Street?

Dr. GREEN. I stood there with Wightman.

Mr. MATTHEWS. And the area immediately north of that known as the grassy knoll?

Dr. GREEN. All three of us stood there for the first sequence of shots.

Mr. MATTHEWS. What did they observe at that time as to the sequence of the shots?

Dr. GREEN. With the exception of McFadden who we think confused the N wave and pointed to the courthouse, they all scored 100 percent, that is, they could correctly locate the source of the sound. Any rifle shot from the Knoll was quite evident. It was a very, very loud sound. You almost jumped when the rifle was fired from such a close distance. We were within probably 30 to 40 feet of the muzzle blast. The pistol was quieter and it was subsonic so it did not produce an N wave. It was extremely easy to localize because it was such a relatively small sound compared with the massive blasts of the rifle.

Mr. MATTHEWS. Mr. Chairman, at this time I move for the admission of JFK F-361.

Chairman STOKES. Without objection it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-361

Mr. MATTHEWS. Dr. Green, what were some of your first research analysis in this case?

Dr. GREEN. The first work I did was, I looked at a statistical survey prepared by Josiah Thompson from his book, *Six Seconds in Las Vegas*—I think that was the name of it—in which he compiled one of the witness' testimony as to the locus of the shots. I was highly confused concerning that analysis and somewhat doubtful because of what I have tried to review concerning the apparent location of weapon firing. He claimed a low percentage of his respondents' recording anything other than the Texas Book or the knoll as the potential location of the rifle.

Sixty-six percent in his analysis reported they didn't know, and 3 percent reported that any other location other than the Texas Book or the knoll.

Mr. MATTHEWS. Mr. Chairman, at this time I would move for the admission of JFK F-360, the chart that was composed by the committee staff. I would add, Mr. Chairman, that it was composed upon the number of witnesses at Dealey Plaza whose location could be pinpointed and who could give pertinent information regarding the number of shots and the spacing of those shots and origin of those shots.

This information was taken from the official files and reports of law enforcement agencies and from testimony before the Warren Commission.

Chairman STOKES. Without objection it may be entered into the record at this point.

The information follows:]

TABLE III
Number of Shots Reported

	2	2 or 3	3	4	DON'T KNOW	TOTAL
TSBD	3 (4.6)	2 (1.9)	38 (35.5)	2 (1.6)	1 (2.4)	46
KNOLL	5 (2.0)	2 (0.8)	11 (15.4)	0 (0.7)	2 (1.1)	20
OTHER	2 (2.9)	1 (1.2)	22 (22.4)	3 (1.0)	1 (1.5)	29
DON'T KNOW	7 (7.5)	2 (3.1)	61 (58.6)	1 (2.7)	5 (4.0)	76
TOTAL	17	7	132	6	9	171*

The first entry is the obtained data. The number in parenthesis is the expected number of such judgements if the source and number of shots are independent judgements.

*7 other witnesses report 1, 4-5, 5, 6 or 8 shots.

JFK EXHIBIT F-360

Mr. MATTHEWS. Dr. Green, I direct your attention to JFK exhibit No. F-360. Are you familiar with that chart?

Dr. GREEN. Yes, that is a chart that I prepared based on the analysis that you provided. Along the columns of the matrix there are reports on the number of shots the witnesses heard.

For example, along the top some of the witnesses, 17, reported that there were 2 shots out of a total of 178. The vast majority, almost 77 percent, 132 out of 178, reported that there were 3 shots fired. Along the rest of the matrix are the lists of the place of origin of the shots as reported by the spectators, that is, the Texas School Book Depository was pointed to by 46 out of 178 respondents. The knoll was pointed to by 20. The other response, that other than the knoll or the Texas Book, 29 spectators, and subjects, about 44 percent, reported that they did not know the location of the shots.

Mr. MATTHEWS. Would you make a comparison of the data obtained in this research and the results of the information obtained

from your field tests, then can you make a determination of which of these witnesses would have been correct in localizing the shots?

Dr. GREEN. No; I don't think you can, for the reasons that I tried to outline earlier because a variety of determinants actually influence the judgment. In some cases the way the subject was facing, in other cases whether he heard the blast or the N wave and made his localization judgment based on the former or the latter.

What I have tried to do in the interior in that table in the actual entries in the table is to test the assumption that there is essentially independence between where the witnesses point as the origin of the shot and the number of shots that they report.

So what I have done in that table is essentially assume that the two judgments are completely independent and try to predict how many subjects would fall in each cell of that matrix on the basis of that assumption of independence.

So, for example, using that assumption in the upper lefthand corner there, you see that there were three subjects that in fact pointed at the Texas School Book Depository and reported they heard two shots point under the assumption of independence you could expect 4.6 to be the number, et cetera.

You can see by the close correspondence between the numbers in brackets and the bold numbers above them that you can essentially assume independence between the two types of judgments. If you entertain the hypothesis that only people who could hear that the shot came from the knoll might be expected to hear the fourth shot, the three others coming from the Book Depository, you might expect that assumption of independence would be violated, but as you can see, there is no evidence in that table to indicate that that was the case.

Mr. MATTHEWS. Now after completing the research analysis and the field tests in this case, have you had an opportunity to confer with your associates in this matter?

Dr. GREEN. Well, after the tests, we discussed for 3 or 4 hours what we had heard and talked about what we had heard with respect to the reports that we had seen from the witnesses.

I also drafted a preliminary report which they have seen and essentially concur with. I think we are in general agreement about the results of this test.

Mr. MATTHEWS. Based upon that research, will you give your opinion to the committee today as to final conclusions?

Dr. GREEN. I think the first conclusion is that we were very surprised at the loudness of the sounds that we heard. We had read reports from the witnesses of firecracker-like sounds and the like. These gunshots were truly enormous in intensity, as you could see from some of the numbers that Dr. Barger reported this morning, the peak overpressures of these waves are very large.

I might add that throughout the first and second tests we attempted to simulate some of the noise in the Plaza by running a motorcycle. Actually, we had three motorcycles present and we ran the motorcycles to provide masking noise during the test, but it soon became apparent that the motorcycles were unnecessary. They did not mask any of the important sounds we observed. The blasts clearly overcame them. They simply prevented us from

having conversation with each other so we dispensed with them in the latter sequence of tests.

We are simply unable to offer any explanation for why some of the observers reported these relatively small sounds when we know the intensities and loudness produced by the Mannlicher-Carcano.

Several witnesses were hunters and they reported rifle blasts but there were several others who reported the sounds to be extremely small.

The second conclusion would be to comment again about the consistency of the observers. They were extremely consistent in their responses. In general they were fairly accurate, probably in the 90 percent range. This may be due to the fact that they are well practiced in this sort of task. It may also be due to the fact that they knew that the rifles were going to be fired, whereas the spectators were caught largely unaware, or it may be due to the emotional response of the subjects that occurred after the first or second shots were fired.

Unfortunately, I know of no research, no evidence that would indicate how that would affect their judgments so I simply cannot comment on those differences. But our subjects, and our witnesses were remarkably consistent.

The third thing I would mention is that there are strong reverberations and echoes present in the plaza. For the most part, these did not cause confusion among our witnesses because they occurred sufficiently late in time so that they were clearly recognized as echoes, the echo off the post office annex building for example arrived about nine-tenths of a second late. It was clearly heard as an echo off the post office annex building.

Probably a more potential source of confusion was the echo off the railroad underpass, especially when you are located immediately under the Texas School Book Depository, because the N wave coming over your head out of the Depository is very confusing so you are sort of startled and nothing makes much sense, especially if you think the sound is right up above your head.

So the first sound that arrives from any object on the ground comes from the railroad underpass. I think I also commented that from the railroad itself there are strong echoes off the buildings on Houston Street.

A fourth thing I would comment on, that I have touched on already any sort of a knoll shot, whether it be rifle or pistol—and these were both unsilenced weapons, but I am not sure that makes a great deal of difference—any sort of knoll shot when observed from at least several locations, particularly the knoll itself, immediately across from the knoll, and to some extent below the Texas School Book Depository, is a very easy place to localize sound. That is, a shot from the knoll is usually heard as a shot from the knoll.

There were few errors on that. In fact, I don't think there were any errors on that particular shot. So if there was a shot from the knoll, it is extremely easy to localize it at the knoll.

Finally, I would like to make one observation that I think is inconsistent with the argument that there were three shots from the Texas School Book Depository and one from the knoll. That is, if there were any shots from the Texas School Book Depository and at least one from the knoll, one might expect, since these judgments are

not all that difficult, that many subjects would report two sources for the locus of the shots, that is, they would report both the Texas Book Depository and the knoll as places from which weapons were fired.

If you go over the statistical survey of the 178 observers who gave reports, there are exactly 4 that mentioned dual locations, that is, that say the locus of the shots came from two places. I find that a strikingly low number given the hypothesis that the weapons were actually fired from two places.

We found that it was comparatively easy to localize knoll shots, at least from the knoll, across from the knoll; and to some extent under the Texas School Depository, and there was little doubt in the vicinity of the Depository that a shot was fired from that building.

I think that concludes it.

Mr. MATTHEWS. Did it make any difference in localizing the origin of the shot where the target was?

Dr. GREEN. It changed the character of the sound somewhat because in various locations you would either hear N wave or not. So I would not say that it did not make any difference, but as to the localization response, it generally was not terribly important.

Mr. MATTHEWS. Mr. Chairman, I have no further questions.

Chairman STOKES. The first questioning of the witness is to be by Mr. Fithian. We have a vote on the floor. So I think we will recess for about 5 minutes and then we will resume questioning the witness.

[A brief recess was taken.]

Mr. FITHIAN [presiding]. The committee will come to order.

Mr. Matthews?

Mr. MATTHEWS. Dr. Green, you were present during the course of Dr. Barger's testimony, and if you recall, he mentioned that some of the shots fired from the TSBD building were from a position within 2 or 3 feet inside the window.

What effect would that have had upon the witness' opinion of the origin of the shots?

Dr. GREEN. The intention of that manipulation was to suppress to some extent the blast wave and to make the N wave more noticeable compared to the blast wave. I would say it was marginally successful, but perhaps because of the sophistication of my subjects they all reported they generally heard the blast with some minor exceptions.

When Dr. McFadden was on the railroad overpass the farthest distance from the Texas Book Depository, and the target was No. 4 which is almost again the railroad overpass down there on the bottom, he was often confused and heard a source directly up Main Street, he said.

So I am not sure what he heard, whether he heard an N wave. The cone of the N wave didn't sweep over him but some part of the wave may have still reached him, but in any case he made that observation.

But for the most part, it would be difficult to detect from the data itself whether the manipulation of moving the rifle muzzle back had any effect. It was our impression that it made the N wave

more evident, but whether we knew that should happen and therefore heard it or whether it actually happened I am not sure.

Mr. MATTHEWS. Thank you, Dr. Green. I have no further questions, Mr. Chairman.

Mr. FITHIAN. Dr. Green, with regard to the original ear witnesses, I had to step out for two votes and perhaps you covered this, but I am curious to know whether or not you can tell us anything about the probability of accuracy of those individuals.

Dr. GREEN. I did comment on that while you were gone. The short answer is: I can't contribute very much. All of the experiments that contribute to our knowledge about localization are done in these rather routine and repetitive tests where you essentially put two sound objects at some distance, play one or the other, and ask the subject to tell you which one occurred.

So in these cases the subject is always well aware that there are a limited number of sound sources and he knows what discrimination he is supposed to make and he makes it over and over repetitively. Whereas, in the situation we are talking about here, of course, everybody was surprised by the first shot. I really can't say what effect that would have. There is no available literature on that sort of situation and it would be largely speculation on my part.

There are some experiments where the range of signal alternatives is not known to the subject. In this case these are detection experiments, trying to detect a weak sound in noise as a matter of fact, and the fact that the subject doesn't know which sound to expect does not make as much difference as you might expect. The difference is about a decibel.

Mr. FITHIAN. There has been a great deal of testimony by individuals and not a little literature indicating that a fair body of people who identified the sound indicated that the sounds came from two different directions, a very significant number as I recall, 40-some, testified that they heard shots which came from—and they pointed or otherwise indicated what came to the Texas School Depository window, and something in excess of one-half dozen identified the grassy knoll and in fact some policemen apparently took off toward the grassy knoll and other eyewitnesses said they saw a puff of smoke from the grassy knoll, et cetera.

What I am trying to elicit from you is any help your expertise can give us in sorting out the validity of the ear and eyewitness testimony that we have in the Warren Commission report.

Dr. GREEN. Let me go back to your first statement because I think we seem to be in disagreement about facts if I heard you correctly.

There were very few subjects who reported two locations were the source of the sound. I know of only 4 in the list of 178. There were a large number of subjects who reported they didn't know or were confused by the echo's reverberations, et cetera.

I have tried to point out that the rifle blast particularly, because of the N wave, creates a very confusing acoustic stimulus and you are liable to point at the N wave. Whether that makes any sense or not is another matter.

You can point at the sky for example, if you were down on the street level and the path of the bullet goes over your head and I

would think you would then report you don't know the source of the sound because it is very confusing for the sound to be up in the sky. If you take a single subject out of the plaza and ask me on the basis of his report would he be likely to be more accurate than any other subject, I simply could not say there is any more likelihood that one subject would be more accurate than another.

Mr. FITHIAN. If you will suspend for just one moment, Dr. Green, I would like to have entered into the record JFK F-362 and have it displayed on the easel for a couple of questions of the witness.
[The information follows:]

REPORTED ORIGIN OF SOUND

WHERE THEY STOOD	TSBD	KNOLL	OTHER	DON'T KNOW	TOTAL
	5	1	4	2	12
	3	2	1	1	7
	16	1	10	3	30
	4	0	6	1	11
	13	3	11	3	30
TOTAL	41	7	32	10	90

JFK EXHIBIT F-362

Mr. FITHIAN. Now, Counsel Cornwell, in the preliminary analysis made of this chart there seems to be some confusion about the numbers. Could you first of all clarify, since the total of 90 in the lower righthand corner does not equal the total number of ear witness accounts we have, how exactly this chart was constructed?

Mr. CORNWELL. The difference between the two charts, first, is that the chart that Dr. Green has previously made reference to includes persons scattered all over the plaza. The second chart has a more limited function. It was designed to facilitate direct focus upon the reported origin of shots from those persons who stood in the same areas of the plaza that Dr. Green and his listeners stood.

Therefore, the figure "90" in the chart which was just put up is a smaller number than the total number of observations, 171, reported in the earlier chart. The 90 figure is a very restrictive one. It is making the basic four areas that Dr. Green's listeners stood; namely, in the grassy triangle, on the knoll, in front of the TSBD, the railroad overpass, and on Elm Street, and simply selecting those persons who we knew were standing in those areas and

reporting where they said, for each of the areas, the shots originated.

Mr. FITHIAN. Now, Dr. Green, whether we use your figures, that is, the figures in the chart already introduced, or the one just introduced, we get several people, 7 in the latter and I believe 20 in the former, who identified the grassy knoll as the source. Is that correct?

Dr. GREEN. That is correct.

Mr. FITHIAN. From all you know about where the shots were fired and applying the science of your training, could that many people, wherever they were located, identify the shots as deriving from the grassy knoll in the absence of a shot from that area?

Dr. GREEN. In my opinion, easily. Certainly the long shots, especially if you take those subjects that are further up Elm toward the Book, could have very easily confused the N wave. The N wave is in front of them. They make a front-back confusion and they will point to the knoll.

I counted a total of something like 10 subjects that point toward the Knoll that stood in that area. I am a little more generous in my definition of knoll than this chart that has been introduced. But there are about 10 people. There are a few people scattered over the rest of the plaza that also report the knoll. There are two or three in the Book, several down in the triangle, one on the railroad tracks, a couple by the courthouse, et cetera. I don't find it surprising that some of those people; that is, a relatively small percentage, could point at the knoll despite the fact that nothing was fired from the knoll.

What I do find more surprising is what I stated as my final conclusion, that if there was somebody firing from the knoll, and anybody firing anyplace else, why more people didn't hear both shots. As I said, only 4 out of the total of 178 heard two shots as the locus.

Mr. FITHIAN. Thank you.

Does counsel have any further questions?

Mr. MATTHEWS. I have none, Mr. Chairman.

Mr. FITHIAN. With the possibility that those who dashed out to vote on veteran's preference might want to recall you, I think we will excuse you now.

Under the rules of the committee, you are entitled to 5 additional minutes to clarify, amplify, and in any way modify your testimony here today.

Dr. GREEN. I have had plenty of time. Thank you very much.

Mr. FITHIAN. Thank you.

Dr. Green, just before you move away, I am not sure whether Congressman Dodd has any questions or not.

Mr. DODD. I don't immediately here, but I know both the chairman and Judge Preyer are coming right in.

Mr. FITHIAN. Why don't you just remain seated there and let's bring Dr. Hartmann up.

I would like to ask the staff to put up the appropriate jiggle analysis charts that we used this morning. I think they are unnumbered.

Mr. CORNWELL. I think they are No. 177.

Mr. DODD. Mr. Chairman, before you move on, maybe I could address a question to our last witness, if I could.

Dr. Green, as I understand it, you earlier testified that with respect to any one subject, you could not say whether or not he or she would be more or less likely accurate; is that correct?

Dr. GREEN. That is correct. I think I stated if you took a single subject out of the plaza and asked me if he or she were more or less likely to report the correct locus of the shot, I would not be able to say.

Mr. DODD. Are you familiar with the testimony of Governor and Mrs. Connally when they testified before this committee several days ago?

Dr. GREEN. I have read a newspaper report of it.

Mr. DODD. Just to refresh your memory, they indicated they felt quite clearly that the shots came from their right rear. What I am asking you is: Based on the statement that I just read as what I understood to be a paraphrase of your feelings, whether or not your inability to make a judgment on individual accuracy precludes you from aiding this committee in making a judgment on the accuracy of both the Governor's and his wife's statements as to the number of shots in addition to the direction.

Dr. GREEN. I am glad you brought that up because I looked at my testimony and see I didn't say much about the number of shots compared with my remarks about their locus and that is because I know of practically no literature on the topic. Experiments on subjects, guessing the number of loud sounds are, to my knowledge, lacking. So I don't really know what to say about the accuracy of those numbers. I have no way of giving you even a rough guess as to the accuracy.

I have heard informal reports that sometimes they are very inaccurate. My initial impression, looking at those numbers, was that the high numbers were obviously confusion with echoes; that is, there was one subject who reported eight shots and I presume he simply confused some of the echoes off some of the buildings.

But I could not really tell you how accurate the judgment of the numbers is. I know of no literature on this.

Mr. DODD. And you are stating for us as well that to the best of your knowledge there is no body of knowledge or information that we could seek out that would assist us in making that kind of an evaluation dealing with numbers now?

Dr. GREEN. Not to my knowledge.

Mr. DODD. Fine. Thank you very much, Mr. Chairman.

Chairman STOKES. Does counsel have anything further?

Mr. MATTHEWS. No, Mr. Chairman.

Chairman STOKES. Dr. Green, at the conclusion of a witness' testimony before our committee we extend him 5 minutes in which he may in any way explain or amplify or expand on his testimony in any way. I would like to extend 5 minutes to you at this time for that purpose.

Mr. DODD. If I may, Mr. Chairman, before you get that chance to refuse that offer, I asked you about direction and numbers. You responded in numbers, and I also wanted to ask that same question with regard to the Governor and Mrs. Connally's statement about direction of shots.

Dr. GREEN. The thing that makes my testimony uncertain is that the subjects that I took to the plaza were extremely accurate. They did not find these discriminations difficult.

The question at issue is my observers were expecting the shots, they knew they were coming. They didn't know the order but they knew they were coming from two locations. They were trained observers. If you have a subject that is unprepared for the shots, that is quite a different issue. I don't know how to extrapolate for that situation. I have commented that there is no available data on that sort of situation. There are certain locations that are best for observing certain shots and in the general region of the book depository, right on the street beneath it, in our opinion it was extremely easy to tell it came from the book. There was a massive sound to the right and rear that sort of crawled down the building, presumably due to scatter on the regular surface of the building and it was quite evident.

So I am not at all surprised at Governor and Mrs. Connally's report, but I can also look at the charts and there were other people standing near there, and some are pointing at the knoll when that event occurred.

So I can't tell you what circumstances led to that judgment other than to suggest that this is a complicated stimulus, that it depends in that location somewhat on where your head is pointed, for example. Other factors could also enter the judgment.

Mr. DODD. Fine.

Thank you.

Chairman STOKES. Dr. Green, you have 5 minutes.

Dr. GREEN. I have already refused your kind offer once and I will do so again.

Chairman STOKES. All right.

Well, thank you very much for appearing here and giving us the benefit of your testimony. You are excused.

The Chair now recognizes Mr. Fithian for further examination of Dr. Hartmann.

Mr. FITHIAN. Dr. Hartmann, I really don't have very many questions and I don't think it will take long.

Are the jiggle analysis techniques used by yourself and your associates for your presentation here today common interpretation techniques? In other words, what I am asking is: Have they been used to help interpret photos and films other than those from Dealey Plaza?

Dr. HARTMANN. I think the correct answer is no. In fact, I would like to emphasize that unlike much of the scientific data that you are getting such as on the acoustic work or the neutron activation analysis, this kind of technique does not have some scientific tradition of routine measurements, you do the measurements this way, this way, this way, and you get such and such an answer.

Here we were much more in a situation of making a common sense hypothesis at the beginning, meaning based on our common experience that a person is likely to react and the best information which I mentioned in my testimony indicates that people do react to that sort of thing and we tried to measure the film to see if there was a reaction, looked at each step as we went along and got the results I showed you.

Mr. FITHIAN. To the best of your knowledge did the Warren Commission employ this technique?

Dr. HARTMANN. I believe they did not. I think that the frame 210 that they identified was identified solely on criteria of some FBI agents estimating when a wound occurred and also that they constrained their shot times by this tree which grew in front of the window. They tended not to want to call for a shot when the President was behind this tree.

Mr. FITHIAN. Let's take the Zapruder film and give me the best estimate of your analysis. If any of the shots that were fired, whether they were three or four or two, if any of those shots were closer to Zapruder than the others, would you expect the blur or the jiggle or whatever the three of you were analyzing according to your own technique to be more pronounced than the more distant shots?

Dr. HARTMANN. I am not sure I can give you a firm answer on the basis of any psychological theory about how the man would have reacted except to indicate one of my own observations.

I think I was the only one in the group who stood on Zapruder's pedestal. That is not far from where the others were in the sequence of shots as was just indicated. But I stood on Zapruder's pedestal during that whole first sequence and the shots from the depository, this is my framework, I am looking out at the street. I had the sensation of a very large sound filling the street area up the street toward depository but the shots from the knoll were extremely loud in this ear and left my right ear ringing and my left ear not ringing.

So I had a very strong sensation from that shot, so I would have expected the witness to be more definite that there was something to the right if there had been a shot fired there.

Mr. FITHIAN. Assuming that the intensity of the unexpected noise has something to do with the amount of reaction of the subject, which I take it is what you just said, is there anything that we can learn, looking at your chart, as to the possibility that any of the shots came from the grassy knoll?

Dr. HARTMANN. I believe not because there are clearly reactions to jiggles. I should not even say reactions because we don't know that every jiggle is a reaction to something. Some of the jiggles may be ordinary panning areas. There are clearly jiggles of different magnitude on there. What we don't know is whether there are several kinds of stimuli initiating jiggles.

By that I am trying to say that there is the classic involuntary startle reaction which is going to produce jiggles. There may be an emotional reaction following that caused by what the man sees through his viewfinder. There may be an emotional reaction caused by what he perceives is going on. The instant where he perceives there is actual gunfire going on here in this plaza in front of me may change his bodily reaction. I think it is very hard to say.

Mr. FITHIAN. Is that a possible explanation of the fact that clearer to the righthand corner of your own chart the disturbances are not only greater amplitude up and down, if you want to use that term, but more pronounced from there on out to the end of the chart?

Dr. HARTMANN. Yes, I think we definitely have that. I should have said that earlier this morning. From 310 onward, which as you say is the righthand corner of those last three charts, Mr. Zapruder has recognized what happened and that is based on his own testimony, as I understand it. He said that he saw the wound, he saw the President's head explode and he reacted very violently to that.

If I interpreted his testimony accurately, he began crying out shortly after that. As I reread the testimony, I could not confirm he was crying out or speaking as he ran the camera, although he says he cried out something like "They killed him" at the end of the sequence. He said he reacted very strongly. I am sure that that is what all that jiggle is at the end.

Mr. FITHIAN. So from your scientific analysis that could either have been started, that first major one could have been started by a shot closer at hand and therefore louder or by what he perceived through the lens. Is that what you are saying?

Dr. HARTMANN. It could have been. One can get even into the problem of whether there may be other gunfire stimulæ buried in all that jiggle at the end. I don't think we can tell, but something clearly initiated that last sequence at 310.

Mr. FITHIAN. Just two small points: Did you view in any of the films that you viewed any motorcycles in the parade?

Dr. HARTMANN. Are you referring to the question raised during Dr. Barger's testimony whether a motorcycle might have caught up to the car?

Mr. FITHIAN. No. I was asking whether you viewed any motorcycles at all.

Dr. HARTMANN. Yes; sir, clearly at the beginning of the parade you see the motorcycles coming around the corner alongside the car and they stayed behind the car during much of the filmed sequence.

Mr. FITHIAN. During your analysis of the film did any of the motorcycles seem to be catching up or moving forward in their relative position in the parade?

Dr. HARTMANN. Not by any substantial amount, no.

Mr. FITHIAN. Mr. Chairman, I have no further questions of the witness.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from North Carolina, Mr. Preyer.

Mr. PREYER. Thank you, Mr. Chairman.

I may have missed some of your testimony on the vote and I may be asking very simple questions, but from my understanding, does your jiggle analysis, when you match it with the Zapruder film, indicate a corresponding peak or reaction in your tape at the moments when President Kennedy was hit by two shots?

Dr. HARTMANN. Yes. Of course, the jiggle analysis comes only from the frames in the film. I think the conservative interpretation of that second chart from the left, which is the summary chart, is that it shows a violent set of jiggles initiated after what we know to be the fatal head shot and that we could characterize an earlier group of jiggles around frames 190 to 200. We know that the President apparently responded to this back wound about a second after that.

So I think we could infer that those two sets of jiggles are connected with the two shots that caused the wounds.

Mr. FITHIAN. If the gentleman would yield, I wonder if we might not introduce Mr. Chairman into evidence JFK exhibit 177A which I think would have applied to that last question and answer, but it has not been introduced yet today.

Chairman STOKES. Without objection it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-177A

Mr. PREYER. So that that exhibit indicates clearly the head shot.

Dr. HARTMANN. Yes. May I go over and—

Mr. PREYER. Surely.

Dr. HARTMANN. If I may, to answer your question, I think I can summarize what I perceive is the situation that we have right now.

Derived from the film is the fact that the photographer jiggled his camera at these times. And if we first look at it in a very broad-brush sense, we see there is a cluster of jiggling going on here and a cluster going on here. Those jiggles are fixed compared to what is happening in the motorcade and with respect to some time scale.

Now, floating free in space, or in time, on an unknown time scale, on a time scale which we don't know how it is connected to that diagram, is this spacing of shots, which the acoustics people have come up with.

The question is how do these fit. These shots could be anywhere along here. We can slide them along. But we cannot start this far back because then we don't have any shots up here to cause that first one. So we have to start sliding forward.

Frame 310 is right in here. So we know that there was a trigger pulled at that time. We could line up No. 3 or No. 4. No. 3 has perhaps been questioned a little bit more, and there is no medical evidence that the shot that hit the head came from the knoll. So perhaps No. 4 is the better lineup.

Mr. DODD. Would the gentleman yield at that point.

Mr. PREYER. All right.

Mr. DODD. You are stating with a pretty definitive assertion here that the trigger was pulled. What you are suggesting is not in fact that a trigger was pulled, but that something caused Mr. Zapruder at that point to wiggle the camera.

Dr. HARTMANN. No, sir. I think we can say that the trigger was pulled, because we see in frame 313 the matter ejected from the head, the head explosion. And in 314 it is flying on up. So if we run it backward—314, 313, 312—the bullet is hitting the head. And then we have to allow about two frames flight time for the bullet.

On that basis I say that the trigger was pulled, a trigger was pulled at 310 plus or minus one. So I would say there must be some sound source starting at 310 plus or minus one.

Now, I would like to work it all the way back to the trigger being pulled, because presumably that is a fixed point in space, as opposed to tying it to impacts on the motorcade which is moving so that we have a firmer fix on it.

So let me say here is a time when there must have been a loud report originating from someplace. Presumably it is the depository, because that matches the acoustic evidence.

Now, the correct number of milliseconds after that, a reasonable number of milliseconds after that, based on the startle reaction, psychological experiments that I quoted from the literature earlier this morning, a reasonable number of milliseconds after that the cameraman starts jiggling. So that makes sense.

Now, the situation is does it make sense up at that end. And in the very broad-brush sense, or if we put on our rosy glasses or diffusing glasses or something, I think you could say yes, the acoustic analysis says there are events up here at this end and the jiggle analysis says there are some events up here at this end, before 200, and not at 210, for example, and not between 210 and 313, which is where the Warren Commission tended to put shots.

So in that sense we have got something new, and we have got some agreement that something is happening up at this end.

And a final sort of broad-brush statement is that I think you will be hearing tomorrow, if I understand, in the testimony sequence quite a bit of interesting evidence, photo evidence, from other members of the photo panel, that a number of very interesting things happen up in here from about 160 or even 150 to about 200—people turning, people who were running along, stopping and looking, this kind of thing, if we watch the crowd action in the background.

So in that sense we have got new results and we have got something that looks interesting and is consistent.

If you now try to get into the detailed fitting of this jiggle pattern to one of these sounds, I think it gets a little bit more difficult.

There probably are several things to be remembered about that. One is there is some uncertainty attaching to the fixing of these times, as I understand it. Maybe a couple of tenths of a second.

That is what is meant when I drew these things as kind of fuzzy bars, that they are not just precise fixed instants. So you maybe get to slide this a little bit.

Maybe I can slide this one around our 310 fiducial mark. And the more I push it, the more unhappy the acoustic people would get presumably. But I can push it a little bit in that direction, and that moves it a little bit up in front of this jiggle, and that makes sense.

The other thing that you can consider is, is it possible that either the movie camera or the tape or both are running at a slightly different time rate than what we timed them.

The camera has always traditionally been timed at 18.3 frames per second. But could that be 19 or 17, something like that?

Mr. PREYER. Could it have been running at that speed that day?

Dr. HARTMANN. We don't really know the answer to that. But that correction would have the effect not of shifting by the small

uncertainty, but by pretending this thing was drawn on rubber and allowing you to stretch it or compress it by a small amount.

We have put our heads together about this and have thought that perhaps 8 percent or something like that might not be unreasonable. And that would get you another 10 frames or something like that up at this end.

So that you could imagine possibly stretching this thing so that these things moved another 10 frames forward. If you did that, then you could start making a case that this shot initiated this jiggle cluster, perhaps even this shot initiated this jiggle here. It would be interesting to see. But we don't have any data, it is not here.

I might also just make a final comment, that all of this would make people who have looked at the previous assassination material I think be surprised, because no one has ever really considered very much the idea that there could be shots that early in the parade.

And I think the basis of that is you look at the parade and at first glance, the first 50 times you look at the Zapruder film you don't see very much happening there.

But I would ask you to listen and see what is discussed, I believe, tomorrow.

Mr. PREYER. Well, is the jiggle analysis consistent with the firing of four shots or is it inconsistent with that?

Dr. HARTMANN. I would be inclined to say that it is perhaps somewhat more consistent with the firing of three shots, without this one. It would perhaps even be more consistent with the firing of two shots, because there are two principal clusters here. I think it is rather weak evidence to answer that question right off.

Mr. PREYER. So it is more consistent with the firing of three shots.

Dr. HARTMANN. Slightly.

Mr. PREYER. But it is most consistent of all with the firing of two shots.

Dr. HARTMANN. I think it would be somewhat more consistent with the firing of two shots. I think this whole mass of material from today gains its credibility by being fitted together with everything else, rather than just being taken as evidence that proves anything on its own.

Mr. PREYER. How much of the reaction is there from Mr. Zapruder seeing President Kennedy struck and reacting, and how much is his jiggling from the sound of the bullet?

Dr. HARTMANN. I think it is impossible to say for certain because we don't know how the human body really reacts. But Mr. Zapruder said that he reacted to the sight of the impact, of the head wound, as I understand it. And that certainly is consistent with this massive shaking that goes on after that.

By psychological experiments that have been done in the past, one would expect that in the first few tenths of a second, though, there would be a startled reaction, and that is probably what we see particularly in frame 318, the very blurred frame.

Mr. PREYER. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired. The gentleman from Connecticut, Mr. McKinney.

Mr. McKINNEY. No questions, Mr. Chairman.

Chairman STOKES. The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman.

You stated in response to Congressman Fithian's question that the Warren Commission was in error in identifying frame 210 as the frame in which the first gunshot was fired. What is your explanation for the Warren Commission's error?

Dr. HARTMANN. Well, I don't know that I said so flatly that they were in error. But I would say that that evidence does not fit very well with what we have.

And again, my understanding was that the process of logic that they used was they had some testimony that it looked like the wound occurred at about 210, when the President was behind the sign, and that is marked on this little set of keys up at the top.

And then the process of logic continued by saying "We think that—we know from the measurements that the car was behind the general body of the tree shortly before that."

And they felt that that was a less likely time for the assassin to have fired, although there is a gap that they commented on themselves in the foliage of the tree that occurs at about 186. And I think those were the two key bits of testimony.

I am not certain that that is all of the testimony. But I think that is basically why they concluded that.

And as I mentioned before, I am not aware that they did any of this kind of analysis, nor did they look very seriously, I believe, at the early frames. And in fact if you look in your Warren volumes, they start the Zapruder sequence, it was something like 177 or somewhere in the 170's. So that everything before here isn't even in the final volume that was published.

Mr. DODD. Well, based on what you have been telling us here, it would seem to indicate that we place the first shot in about eight frames, at least eight frames earlier than that, around 200, 202.

Dr. HARTMANN. I think a shot probably even before that. If I went through the little mathematical exercise of subtracting a reasonable number of frames from the reaction time, from this cluster, the answer that I got was a shot something like 179 to 195.

Mr. DODD. To your knowledge, looking from the placing the Presidential limousine and being in the Book Depository, where is that tree in that frame?

Dr. HARTMANN. You would be looking through the tree. Although as I mentioned there is a break in the foliage at 186. And I made kind of a quick comparison of some of the photographs that were in the Warren volume, and the foliage measurements were made on the basis of the tests that were conducted the next spring.

And the point has been made, and I am—the point has been made in some of the literature, and I am inclined to believe it after looking at the pictures that were taken on the 22d of November and the pictures that were taken next spring, that there was probably less foliage on the tree on November 22. So that if anything the marksman might have had a larger opening at 186.

So I am inclined not to think that that is a fatal objection to a shot having been made at this time and hitting the target.

Mr. DODD. In response to Judge Preyer's questions with regard to the number of shots, possible number of shots—and I realize that

you are not advocating that this jiggle test is necessarily the best way to corroborate that——

Dr. HARTMANN. No, I am not.

Mr. DODD. But to make the point, Dr. Barger indicated that two of the shots could have occurred within five-tenths of a second of each other. And I presume what you are telling me is that it would be impossible, based on jiggle analysis, to determine whether or not there was one or two shots within that short a frame, a time frame.

Dr. HARTMANN. I think it would be very difficult to tell. You see the kind of problem that you would get into, if we just take any of this pattern of jiggle back here toward the end of the diagram, it would be hard to pick two of those spikes out and say those are related to these two noises. So I don't know what the evidence would be.

Mr. DODD. Thank you. Thank you, Mr. Chairman.

Chairman STOKES. Mr. Fithian, anything further?

Mr. FITHIAN. Nothing, Mr. Chairman.

Chairman STOKES. OK. Dr. Hartmann, under the rules of our committee any witness at the conclusion of his testimony may have 5 minutes in which to expand upon his testimony before the committee in any way. I would like to extend to you 5 minutes if you so desire.

Dr. HARTMANN. Just to make the point very briefly that it has occurred to me that perhaps sometimes a scientist making the measurements of these films comes across as very coldhearted. I comment at least for myself, and I think many of us, that the horror of this thing came across many, many times in doing this. And I wish you all very much good wishes to clarify what really has happened here.

Thank you.

Chairman STOKES. Thank you very much, sir.

There being nothing further, these hearings are adjourned to 9 a.m. tomorrow morning.

[Whereupon at 6:15 p.m. the hearings were adjourned to reconvene at 9 a.m., Tuesday, September 12, 1978.]

INVESTIGATION OF THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

TUESDAY, SEPTEMBER 12, 1978

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON ASSASSINATIONS,
Washington, D.C.

The select committee met, pursuant to adjournment, at 9:15 a.m., in room 345, Cannon House Office Building, Hon. Louis Stokes (chairman of the select committee), presiding.

Present: Representatives Stokes, Devine, Preyer, McKinney, Sawyer, Dodd, Ford, and Fithian.

Staff present: G. Robert Blakey, chief counsel and staff director; Michael Goldsmith, senior staff counsel; and Elizabeth L. Berning, chief clerk.

Chairman STOKES. A quorum being present, the committee will come to order.

The Chair recognizes Professor Blakey.

NARRATION BY G. ROBERT BLAKEY, CHIEF COUNSEL

Mr. BLAKEY. Thank you, Mr. Chairman.

Bullet trajectory has become a matter of considerable debate in the Kennedy assassination, for it, too, goes, as the testimony has indicated, to the heart of the issue of whether a single bullet wounded both the President and Governor Connally. It also locates the position of the assassin or assassins whom the medical evidence indicates hit their target.

The Warren Commission reasoned that an accumulation of medical and ballistics evidence demonstrated that the shots were fired from the sixth floor of the Texas School Book Depository. Its approach to the line of fire issue, therefore, was simply to determine that trajectory data was consistent with their ultimate conclusion.

On May 24, 1964, the FBI and Secret Service agents conducted a series of tests, reconstructing trajectories. Using the Zapruder, Nix, and Muchmore films, they were able to fix the locations of the Presidential limousine and its occupants. An FBI agent was positioned in the southeast corner window of the sixth floor of the Texas School Book Depository with the Mannlicher-Carcano that had been identified as having belonged to Lee Harvey Oswald.

Mounted on a tripod was a motion picture camera attached to the telescopic sight that viewed the target area precisely as the assassin would have seen it had he used the telescopic sight. The position of the limousine, as it corresponded to each frame of the Zapruder film, was recorded.

The agents observed that at frame 166 of the Zapruder film, the President passed behind the foliage of an oak tree, and but for a fraction of a second at frame 186, he did not move into an assassin's view until frame 210. This led the Commission to accept the probability that the President was not shot before frame 210. The assassin, the Commission reasoned, would have waited until after frame 210, at which point his view was again unobstructed.

At frame 210, however, Abraham Zapruder's view of the President was blocked by a highway sign, and the President did not emerge from behind the sign until frame 225, just short of a second later.

Although the Commission was unable to fix the exact time point the President was first hit, it was able to determine that it was during the period he was behind the sign. The Commission thought he showed no sign of injury before frame 210; he was obviously hit at frame 225. It should be emphasized, however, that there is no photographic evidence recording the precise instant of the first hit to the President.

Still, the Commission proceeded to plot the trajectory of the first shot to hit the President by assuming the position of the limousine to be between frames 210 and 225. At each intervening frame, the FBI agent at the sixth floor window lined up the telescopic sight on the points of entry wounds marked on stand-ins for the President and Governor Connally seated in the limousine.

The next step was to have a surveyor place his sighting device at the precise point of entry on the President's upper back for each frame of the Zapruder film. The surveyor then measured the angle to the muzzle of the rifle in the sixth floor window of the Texas School Book Depository. The measurements were averaged, and, taking into account the downward grade of the roadway, the probable angle through the President's body was calculated at 17 degrees 43 minutes 30 seconds, assuming he was sitting in a vertical position.

The Commission then concluded that this angle was consistent with the trajectory of a bullet that would have passed through both the President's neck and struck Governor Connally in the back.

The critics have decried the Commission's trajectory for the fact that it assumes the shot came from the rear. Here are examples of their commentaries:

Mark Lane in his "Rush to Judgment": The Commission

* * * employed the unproved assertion that the bullet which struck the President came from the rear as the basic premise to prove that it "probably" hit Governor Connally as well.

Sylvia Meagher in her "Accessories After the Fact": The Commission did not give

adequate consideration to the possibility of assassins at locations other than the window or the overpass * * *. There is a considerable body of evidence suggesting that shots were fired from the grassy knoll * * *

Josiah Thompson in his "Six Seconds in Dallas" attempted a trajectory analysis and decided that there were four shots from three locations—two from the depository, one from the east side of Dealey Plaza, one from the stockade fence north on Elm Street.

It would seem that the critics have at least one point in their favor in attacking the Commission's analysis. The analysis assumes the firing position of the assassin as a known, then proceeds to compute the angle to the target. The objective was to verify that the resulting trajectory was consistent with the assumed position of the gunman.

The committee, however, has taken a different approach. It decided to take the entry wounds to the President and Governor Connally as the starting points in its calculations and work outward from there. It was hypothesized that, given a margin of error, the trajectory out from the limousine would lead to the position of the assassin.

The committee in part based its trajectory analysis on the location of the entrance and exit wounds supplied by its medical panel, and it relied on the evidence obtained from photographic and acoustical analysis. Since the trajectory study was underway well before the acoustical analysis was complete, data on the sound of shots was available only in the latter stages of the line-of-fire survey. It is likely, therefore, and it should be emphasized, that the final trajectory analysis may well be modified somewhat in order that the final results of the acoustical analysis might be incorporated.

Consequently, the testimony that you will hear today is preliminary in the sense that it has not yet incorporated the material from the acoustical analysis.

For the photographic phase of the survey, the committee called a 15-odd-man photo scientists who served either as contractors for the committee or as members of its photographic panel.

At a recent conference, they reviewed the Zapruder film from two standpoints, first: They sought to pinpoint when the President and Governor Connally first visibly reacted to being hit by shots. Second, they tried to determine whether the relative position of the two men at the moment Kennedy was probably first hit was consistent with the single bullet analysis or hypothesis.

The photo scientists who did the review represent a broad range of experience both academic and industrial. Their work for the committee has been extensive since, as the presentation on opening day indicated, the photographic issues in the Kennedy assassination are many and complex.

A member of the photographic evidence panel, Mr. Calvin McCamy, is here today to testify on part of the trajectory analysis that utilizes the Zapruder film. He will also discuss the photogrammetric technique that was used to locate precisely the position of the limousine at the time the shots that struck the President and Governor Connally were fired.

Mr. McCamy received a B.S. degree in chemical engineering and M.S. degree in physics from the University of Minnesota. He has taught mathematics at the University of Minnesota and physics at Emerson University. He has been the Chief of Image Optics and Photography with the National Bureau of Standards. Currently, he works with the Macbeth Division of Kollmorgen Corp.

Mr. McCamy serves as chairman of the American National Standards' Working Group on Print Quality for Optical Character Recognition, chairman of the American Society of Photogrammetry

Standards Committee, and adviser to the U.S. delegation to the International Organization for Standardization Committee on Photography.

Mr. McCamy is a fellow of the Optical Society of America, the Society of Motion Picture and Television Engineers, and the Society of Photographic Scientists and Engineers. He serves on the editorial review boards of several technical journals and he has authored numerous papers on photography, color printing and other aspects of chemistry and physics.

It would be appropriate now, Mr. Chairman, to call Mr. McCamy.

Chairman STOKES. The committee calls Mr. McCamy.

Sir, will you stand, raise your right hand and be sworn.

Do you solemnly swear the testimony you will give before this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. McCAMY. I do.

Chairman STOKES. Thank you.

You may be seated.

The Chair recognizes counsel for the committee, Mr. Michael Goldsmith.

Mr. GOLDSMITH. Thank you, Mr. Chairman.

Mr. McCamy, for what purposes were the photographic evidence panel and contractors asked to review the Zapruder film at its most recent conference?

TESTIMONY OF CALVIN McCAMY

Mr. McCAMY. Our first purpose was to ascertain from the photographic evidence, if possible, the first signs that the President or Governor Connally were in distress. The second objective was to ascertain from the photographic evidence, if possible, whether or not the President and the Governor were in positions in the limousine that would be consistent with the single bullet theory.

Mr. GOLDSMITH. How many panel members actually participated in the review of the Zapruder film, Mr. McCamy?

Mr. McCAMY. There were about 20 people altogether. The films were viewed many times in many sessions. They were not all present at all times. When we voted on specific issues, about 15 people voted.

Mr. GOLDSMITH. And did you view any particular version of the Zapruder film?

Mr. McCAMY. Yes; we had a copy, a direct copy, of the Zapruder film. We also had special films that were prepared by Mr. Groden.

These were rotoscoped, which means that they were slightly enlarged and stabilized.

Mr. GOLDSMITH. Does a rotoSCOPE version of the Zapruder film facilitate analysis?

Mr. McCAMY. Yes, it gives you a closer view, and as I said, it is stabilized, so, it seems to be more stable on the screen.

Mr. GOLDSMITH. Now how many times was this film viewed by the panel?

Mr. McCAMY. That is very hard to say, because we would look at a scene and attempt to determine what was happening, go back look at it again, and then again and again. We have looked at it for

days. I would estimate somewhere in the neighborhood of 100 times.

Mr. GOLDSMITH. As you know, Mr. McCamy, the original Zapruder film is missing four frames between frames 208 and 211. Those four frames were spliced out when Time-Life had possession of the film.

Was the panel given an opportunity to see the four frames 208-211, showing the President as he went behind the sign when the panel reviewed the Zapruder film?

Mr. McCAMY. Yes. Mr. Groden had obtained the Secret Service film that had those frames. He had copied them on 35-mm film. These were still slides, and at that point in the viewing, we went to a 35 mm projector and looked at the slides that represented those frames.

Mr. GOLDSMITH. And that Secret Service film I take it was made available to Mr. Groden by the committee staff?

Mr. McCAMY. Yes, that is correct.

Mr. GOLDSMITH. Would you state at this time, Mr. McCamy, what the panel's conclusion was about when President Kennedy first showed a reaction to some severe external stimulus?

Mr. McCAMY. Yes. The panel generally tended to agree that there was some sign of distress before frame 207. We took a vote on that, and the vote was 12 to 5 that there was photographic evidence of some distress by that time.

Mr. GOLDSMITH. Would you indicate at this point whether frame 207 is before or after the President goes behind the sign? By "sign" I am referring to the sign that obstructed Abraham Zapruder's line of sight.

Mr. McCAMY. The President's head is partially obscured by the sign at that time, so this is just as he is going behind the sign.

Mr. GOLDSMITH. And what was the panel's conclusion about when Governor Connally first appeared to be showing a reaction to the severe external stimulus?

Mr. McCAMY. The vote was 11 to 3 that there was some sign of distress by frame 226, which is just immediately after he comes out from behind the sign.

Mr. GOLDSMITH. Finally, would you indicate now what the panel's opinion was about whether the relative alinement of the two men in the vehicle was consistent with the single bullet theory?

Mr. McCAMY. Yes. The positions of the men were examined on these films just prior to the time that the limousine went behind the sign, and it was agreed 15 to 1 that the men were in positions that were consistent with the single bullet theory.

Mr. GOLDSMITH. Mr. Chairman, I might state now that we are about to review the Zapruder film. The film that we are about to review contains all of the frames that had previously been spliced out. We have a special projector here which is capable of running the film at a reduced speed. The normal speed I believe is 18 frames per second, and we will be viewing it today at a somewhat reduced speed.

Mr. McCamy, would you at this point review the film with us for the purpose of describing the actions of the limousine occupants and to summarize generally the basis for the panel's conclusions?

Mr. McCAMY. Yes.

Let me state first the film is taken by Mr. Zapruder, an amateur photographer, using an amateur 8 mm motion picture camera. He had positioned himself on top of a masonry structure where he could see almost the entire path of the parade through Dealey Plaza on Elm Street. For a brief time, view is obscured by a traffic sign indicating the way to the Stemmons freeway.

We are going to see a 16 mm copy of the Zapruder film incorporating all frames. We will first see the entire sequence photographed by Zapruder. We will see it at two-thirds of its normal speed. Then we will go back and make some observations bearing on Governor Connally's testimony that he heard a shot, turned and looked over his right shoulder. Then we will go to a rotoscope version which we will use to study the movements of the President. Then we will again see a rotoscope view in which we will look at the positions of the two men as shown in the Zapruder film and the motions of Connally.

Mr. GOLDSMITH. Could we have the lights out, please?

Mr. McCAMY. At this point, Governor Connally is looking slightly to his left. He continues to look in that direction in the next frame. Here Governor Connally is looking slightly to his left. He continues to look slightly to his left.

In the next frame we see him having turned quite sharply toward the front, and in the next frame even more so. He is now continuing to turn to the right. And here we see him looking to the right and upward, confirming his testimony that he heard a shot and turned and looked over his right shoulder.

We now go to a rotoscope version where we will be seeing it in very slow motion in order that we may observe the actions of the President.

His hand is moving downward. He was waving to the audience. Notice that there are some frames in which there is very considerable blur. This was part of our analysis, as you will recall.

The President continuing to wave to the audience, and apparently smiling on these frames. In this view we can see the President and Governor Connally. The President's shoulders can be seen. Governor Connally is seen turned quite sharply to his right, his entire torso having been twisted somewhat as he looks that way.

Between the two men we see the black upholstery, shiny black upholstery, on the seat behind President Kennedy. The two bright areas you see at the top of that upholstery are reflections of sunlight. So we see a considerable amount of the rear seat of the limousine between the President and Governor Connally.

There is a chrome strip that runs along the side of the limousine. The President's arm is on or over that chrome strip, which means that he is well to the right side of the limousine. Governor Connally, on the other hand, can be seen to be well inside the limousine. These facts were of course confirmed by other photographs as well, but I think they are clearly seen here.

There is considerable blurring at this point. The President's arm is up in a waving position. His head is still toward the right. At this point there is considerable blur, and by here, it appears as though his head is beginning to turn quite rapidly to the left. His

head is now to the left. That is only one-eighteenth of a second from one frame to the next.

He continues to look toward the left. One barely sees his right ear toward the camera. It is quite clear he is here now looking directly at his wife. He and his wife can be seen looking at one another in this sequence.

He now goes behind the sign, and only a fraction of a second later we see his hands moving upward. He has a gasping expression. His hands are in a classic position of a person who has been startled.

He now begins to raise his arms into what I would call a defensive position. He may be clutching at the throat wound. He maintains this attitude, turning again sharply to his wife, who clearly recognizes the situation by now. He moves toward his wife. His wife notices Connally. The President is now moving toward his wife, turning his head toward her, leaning forward, and leaning to the left. His head is quite a ways down, as you can see. His wife apparently inspects the wound or the damage to his clothing at the waist. That is the head shot.

Mr. GOLDSMITH. Mr. McCamy?

Mr. McCAMY. Yes, sir.

Mr. GOLDSMITH. As we are about to view the rotoscope version a second time, could you state the specific basis of the panel's conclusion that the President was hit before he went behind the sign when we view that film a second time?

Mr. McCAMY. We will largely be studying the motions of Governor Connally here.

Here is where he is looking to the right sharply, while the President still waves to the crowd. Here is the view in which you can see fairly well the positions of the men. That is a fairly clear view right there. Governor Connally seems to be looking left (as seen from the viewer's perspective) as the car goes behind the sign. Now President Kennedy made this very sharp sudden turn to the right, turning about 180 degrees in something like a sixth of a second. This was a very sharp turn. It would be whipping one's head around.

As Connally comes out from behind the sign, he has a distressed look on his face. He is concerned. He is looking upward. His body is in a rather taut attitude. He winces. His facial expression changes dramatically. His head position changes rapidly from moment to moment. He grimaces. He begins to turn sharply. His cheeks are reddened. He apparently is screaming or saying something, very early in distress. He turns, looks back at the President, as he said he did, recognizes that the President has been shot, recovers only enough now to lie back down at the time of the head shot which he described.

Mr. GOLDSMITH. Mr. McCamy, I would ask you to run the rotoscope version one more time, and at this time specifically indicate the panel's basis for concluding that Governor Connally is showing a reaction almost immediately after emerging from behind the sign.

Mr. McCAMY. Here he is seen first. He is looking upward. His body is thrown back. He seems to be frowning. His facial expression changed very suddenly there. We can compare those two

frames. That is an one-eighteenth of a second from that to this. Another one-eighteenth of a second later his facial expression has changed radically, and now his head moves very quickly in one-eighteenth of a second.

Now facing straight forward. There was a turn something like 60 degrees in about one-ninth of a second. His facial expression seems to change from frame to frame, and now he begins to turn. His cheeks are puffed here. He opens his mouth, turning back to look at the President.

Mr. GOLDSMITH. Mr. McCamy, at this point, rather than continue with the end of this particular section of the rotoscope film, I would ask you to move the film back to where the two men are behind the sign and indicate the specific basis for the panel's concluding that the men were sitting a position consistent with the single bullet theory.

Mr. McCAMY. This is one of the clearer frames taken in a small fraction of a second before the limousine went behind the sign. The President's arm is on the edge of the limousine. He is seated far to the right in his seat. Governor Connally, on the other hand, is looking to the right, and his body is twisted toward the right. His shoulders can be seen here, and as I indicated earlier, a considerable expanse of the rear seat of the limousine can be seen between the two men at this angle.

This indicates, of course, that Connally was well inside the automobile, and therefore a projectile coming from the right side of the automobile could have penetrated Kennedy's back, come out through his neck, and then gone downward through Connally's torso, his right wrist, which was just above his thigh, and then be buried in his thigh.

Mr. GOLDSMITH. Does this correspond approximately with frame 193 of the Zapruder film?

Mr. McCAMY. Yes, that is approximately right.

Mr. GOLDSMITH. Very well. I would ask you now to finish showing the film at regular speed, and we will proceed with your testimony. Thank you.

Can we have the lights now?

Mr. McCamy, I noticed several times in your testimony that you made references to changes in the movements of the occupants of the limousine within an one-eighteenth of a second.

To what extent was the panel's knowledge and understanding that the Zapruder film runs at approximately 18.3 frames per second important in its analysis? By that I mean, to what extent did the panel attempt to quantify its analysis?

Mr. McCAMY. The 18.3 frames per second was used by the panel. The motion picture camera takes a photograph every 18.3—I am sorry, takes a photograph 18.3 times each second. This tells us that the movement between any two frames takes place in about one-eighteenth of a second, and that timing is quite good. We saw no evidence that the camera was running in an unsteady manner or any such thing, so that this makes it a reasonable basis for timing.

Mr. GOLDSMITH. Now at one point early in the film, you made reference to Governor Connally turning sharply from his left to his right within approximately four frames. If you were to quantify

that, would that come out to a turn of something like or something in excess of 720° per second?

Mr. McCAMY. I would describe it in this way: There was first a jerk of about 60 degrees in a one-ninth of a second, and that would be characterized as a jerk. He was looking slightly left. He jerked toward the right, paused momentarily, and then executed another sharp turn to his right, 30° more in one-eighteenth of a second. So, it was essentially two sudden jerks, and then he began to look upward.

Mr. GOLDSMITH. And that was approximately at frame 160 of the Zapruder film?

Mr. McCAMY. This is the first jerk from 162 to 164, and the second one, 166 to 167.

Mr. GOLDSMITH. Thank you. I am going to proceed now to the next area of inquiry, Mr. McCamy.

Are you familiar with the trajectory project that has been conducted by this committee?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. To what extent have you been involved in this project?

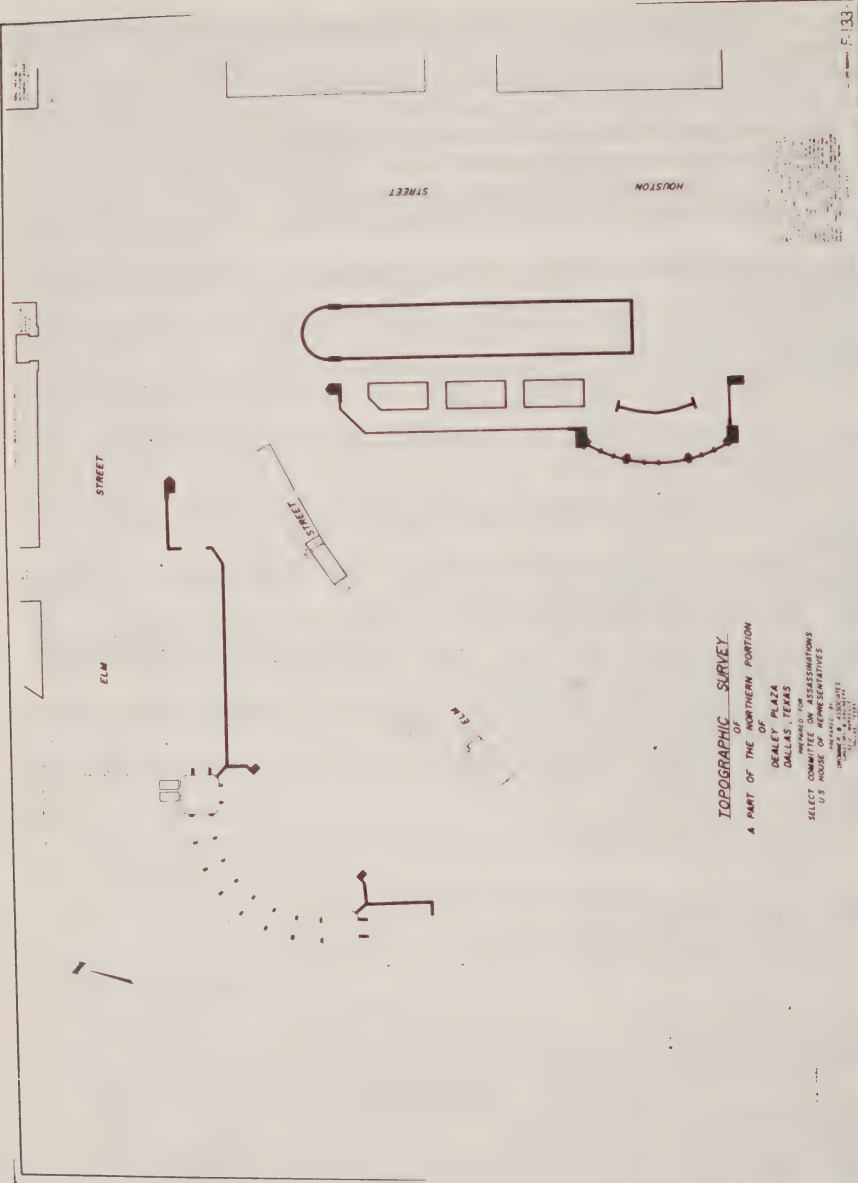
Mr. McCAMY. I assisted with some of the photographic interpretation and some of the photogrammetry.

Mr. GOLDSMITH. At this time I would ask that the witness be given an opportunity to look at what has been marked for identification as JFK F-133, a Survey Map.

Mr. Chairman, this is a survey map of the Dealey Plaza area. I move for its admission into the record.

Chairman STOKES. Without objection, it may be entered into the record.

[The information follows:]



Mr. GOLDSMITH. Mrs. Downey, may I have your assistance for a moment?

According to this map it indicates the position of the Presidential limousine in frames 193 and 313 of the Zapruder film. Mrs. Downey is pointing to those two positions on the map.

I ask you, Mr. McCamy, do you know what method was used to place the limousine in Dealey Plaza for purposes of the trajectory analysis?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. Who actually carried out this analysis for the committee?

Mr. McCAMY. This was done by the U.S. Geological Survey in Reston, Va.

Mr. GOLDSMITH. Would you describe now what method they used photogrammetrically to place the limousine in Dealey Plaza?

Mr. McCAMY. Yes, a map was made of Dealey Plaza by a survey firm in Dallas, Tex., and that map was provided to the Geological Survey. Enlargements of six frames of the Zapruder film were provided to the Survey.

The position of the cameraman was known from his testimony and confirmed by photographs of him taken by photographers on the other side of the street. The Geological Survey found a number of points on a wall that appeared in these photographs. They located these points precisely on the map, and they could determine the line of sight from the lens to each of these points.

Now these lines made angles at the camera lens. The same angles were described inside the camera when the scene was imaged. They were able to measure the corresponding distances on the film, and knowing the angles and these corresponding distances, they were able to determine the distance from the film to the lens. Once that distance was determined, it was possible to make measurements on photographs, and from those measurements compute angles in space.

They knew the dimensions of the limousine, both from design drawings and from measurements made by the Secret Service. Knowing the dimensions of the limousine, and the angles subtended on the films, it was possible for them to compute the distance from the camera to the limousine.

Then on these photographs they were able to pick out known points in Dealey Plaza and known points on the limousine, and, as I said, they were able then to compute from the measurements on the photograph the angles from these known points to the points on the limousine.

Knowing the distance and knowing the angles, they were able to plot these positions on the map.

Mr. GOLDSMITH. Does this method have any particular name by which it is referred to?

Mr. McCAMY. This is analytical photogrammetry.

Mr. GOLDSMITH. And within what margin of error was the U.S. Geological Survey able to place the limousine in Dealey Plaza?

Mr. McCAMY. They made estimates of the error. Some of the frames given to them were better photographically than others, and on the three best frames, they estimated their positions to be

within one-half meter. For the other frames that were not as clear, they estimated their maximum error to be about 2 meters.

Mr. GOLDSMITH. In your opinion, Mr. McCamy, do you regard these estimates as being conservative?

Mr. McCAMY. They have said that these are conservative estimates, and, yes, they sound like quite conservative estimates to me.

Mr. GOLDSMITH. Why do they sound conservative to you, sir?

Mr. McCAMY. Because the methods of photogrammetry are very precise. We have lines of sight, and we have quite precise methods of computation, so I would think that these are conservative values.

Mr. GOLDSMITH. Thank you very much.

I have no further questions.

Chairman STOKES. The Chair will at this time yield to the gentleman from Michigan, Mr. Sawyer, after which the committee will observe the 5-minute rule.

The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Yes. Thank you, Mr. Chairman.

When you were making these studies on trajectory, did you make any assumptions with regard to the positions of the people in the limousine?

Mr. McCAMY. The positions of the people in the limousine were determined by a study of a large number of photographs.

Incidentally, some of these photographs have just come to be known, so that there is some new evidence. At least one recent photograph is a very clear photograph of the side of the limousine taken by a man standing right on the curb. So we do have quite a bit of information about the positions.

On that photograph that I just mentioned, I went back to the design data for the limousine and to the measurements that were taken by the Secret Service on the various parts of the limousine, and these gave quite accurate scaling, and then it was possible to make measurements of the people. Not all of the people were visible. There were times when there were areas that were simply in shadow so that you could not see everything. The determinations are not perfect, of course, but we were able to position them quite well, I think.

Mr. SAWYER. I noticed, or as I recall it, you said that Governor Connally executed this rapid turn to his right, as I recall it, 90 degrees in one-eighteenth of a second, and then looked upward.

Now this was before, that was 166 to 167 frames, whereas you said the panel agreed on a vote that about frame 207 was the first indication that the President was in distress.

Mr. McCAMY. Yes.

Mr. SAWYER. So that I presume from listening to you, that it would be an indication at least that there had been a shot that didn't hit anybody at that time, at about 166 to 167?

Mr. McCAMY. This would explain the observed facts, yes.

Mr. SAWYER. And then if I follow more by inference than specifically what you said, it would have been a second shot that hit the President for the first time.

Mr. McCAMY. Yes.

Mr. SAWYER. And that would have been the shot that presumably then hit Governor Connally also.

Mr. McCAMY. Yes.

Mr. SAWYER. Thank you.

I have no further questions, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The Chair recognizes the gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Mr. Chairman, I will defer any questions I have at this time.

Chairman STOKES. The gentleman from Ohio, Mr. Devine.

Mr. DEVINE. I have no questions, Mr. Chairman.

Chairman STOKES. Any other members seeking recognition?

The gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. Mr. Chairman, I wonder if at some time this morning I might see the photo that was taken by the man on the curb. Is that evidence available?

Mr. GOLDSMITH. I am not sure which photograph you are referring to.

Mr. FITHIAN. The one that Mr. McCamy just referred to. He said was a very clear photo taken perpendicular to the limousine; is that correct?

Mr. McCAMY. Part of the limousine, yes. This is the Croft photo.

Mr. GOLDSMITH. Yes, Mr. Fithian, that will be made available.

Mr. FITHIAN. The only problem I have with the testimony is the location, the relative location, of Governor Connally and the President.

As I perceive it, the Zapruder angle in relationship to the side of the limousine is about what?

Mr. McCAMY. That is a rather sharp angle at that time. I would estimate something like 20° . I have not calculated that.

Mr. FITHIAN. From your expertise, the photo shot, the picture taken at that angle, what does this do in terms of spreading the perceived distance between the two men?

Mr. McCAMY. It would appear as though the two men are very perceptibly separated left and right, that is, that Kennedy is right against the edge of the limousine and—

Mr. FITHIAN. I understood your testimony. Let me rephrase my question.

If Zapruder had been looking directly at Connally's nose from the front, then the alinement of Connally and Kennedy could be readily and clearly measured as to which one was at forward ships, to speak.

The question is, as you swing around at an angle, where you actually get in the angle that would include Zapruder, what does it do in the perception of the two people? Presumably, if you get around at 90° , there would be no way of telling, except by distance measurements, which of the gentlemen was closer or further from the vehicle. But what does it do at the Zapruder angle? That is my question.

Mr. McCAMY. At the Zapruder angle, the apparent displacement is reduced, so that the displacement is actually greater than you would compute it simply looking from that angle.

Mr. FITHIAN. So it appears that those two bright, shiny spots and forth, it actually appears that they are further apart, that is, in alinement within the vehicle, than they are by some certain percentage.

Mr. McCAMY. Yes; I see what you are getting at.

Connally is, of course, definitely well in front of Kennedy, and we are seeing part of that angle as well. But as you perceive, if we were to look from the side of the vehicle, we would not get any indication at all of the shift of Connally to the left. We would see that vector at a maximum, if we look right straight from the front of the vehicle. That vector is reduced slightly by moving through this 20°.

The positioning of the man, however, as I have pointed out before, was obtained from a number of photographs, not just this one. There were other motion pictures, as well as other still photographs, and with reference to the apparent shift with angle, the eye is a pretty good judge, so that when you look at that and you get an impression of how far they are, you can trust that impression pretty well.

Mr. FITHIAN. I take it then that you are satisfied that there is room, though this jump seat is very small for Connally, a large man, to make these what seemed to me to be almost violent gyrations or at least very quick movements.

Mr. McCAMY. He made rather quick movements. I think the small size of the jump seat would facilitate these movements actually.

Mr. FITHIAN. And, finally, Mr. Chairman, a last question.

It is your testimony that at frame 162 to 167 or thereabouts, both men make rather sharp movements, but they are not hit. That is your conclusion?

Mr. McCAMY. No, sir, that was merely with reference to Mr. Connally. At that time President Kennedy is happily waving to the people in the crowd.

Mr. FITHIAN. So Connally makes a sharp movement.

Mr. McCAMY. Yes.

Mr. FITHIAN. You are presuming because he heard something or he reacted to something.

Mr. McCAMY. Yes; he testified to this effect, and this would seem to be consistent with what he testified.

Mr. FITHIAN. And then that the single bullet that hit them both is just as they enter behind the sign or one frame or two ahead of that; is that correct?

Mr. McCAMY. Yes.

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Yes.

If we were to assume or determine as the panel did and as we think we could see, that the reaction to the noise apparently by Governor Connally occurred in, say, frame 166, and the visible first reaction of any distress on the part of the President was at about frame 207, and considering that the reaction times of both men probably are a wash, there would be about 2.3 seconds between the presumptive first shot that missed and the shot that hit the President about 2.3 seconds?

Mr. McCAMY. Yes, something like that, right.

Mr. SAWYER. Thank you.

That is all.

Chairman STOKES. The time of the gentleman has expired. The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman.

Just very briefly, you indicated that the distances between Governor Connally and the President in one clear frame is approximately 1 meter, I think you said, and a blurrier frame, 2 meters, and you said you were being conservative.

Then you indicated this was an exact science.

Mr. McCAMY. When we were speaking of those errors, we were talking about the ability of the Geological Survey to place the mousine on the street in a precise position. They feel as though their errors are within a half meter in placing it geographically for the better frames and within 2 meters for the poorer frames, but it is not the distance between the President and the Governor. That was surely known with much better precision than that.

Mr. DODD. One of the areas that has drawn a lot of attention over the past few days that we have been here, in terms of the photographic evidence and the timing of the shots, has to do with Governor Connally's hat. Congressman Sawyer has I think very frequently pointed out how difficult it would be for him to understand—and I think many of us, who are not as expert as he is in that area, also have difficulty understanding—how someone could get on to a hat and be hit, as the allegations have it, hit through the wrist.

What does your photographic evidence show with regard to Governor Connally's Texan Stetson hat in the photographs as you saw them in the Zapruder film?

Mr. McCAMY. It can be seen that he has his hat in his hand or hanging somewhere in front of him. The pictures are not quite clear enough to be able to tell you exactly what he does with the hat, but it does seem to have the hat in his hand. The medical evidence certainly shows that the radius was broken, but that is well up on the wrist, and it seems conceivable that he could have continued to clutch the hat. It is quite well known that one of the startled reactions is to clench the fists, and it just may be that he clenched very tightly.

Mr. DODD. But as a matter of photographic evidence, I am not going to get you to comment on the medical aspects. As a matter of photographic evidence, he is holding, your evidence shows or your examination of these photographs shows, that he is holding that hat after he has been hit.

Mr. McCAMY. Yes, it seems to be the case because the hat moves, and I would think this is because it was in his hand being moved.

Mr. DODD. Could you give me an indication? You moved your head a couple of times trying to demonstrate how Governor Connally moved.

How fast do you move your head in one-eighteenth of a second? What does it look like?

Mr. McCAMY. I visualize Connally in that first sequence we were talking about moving this way and then this way.

Mr. DODD. That quickly?

Mr. McCAMY. Yes, that quickly.

Mr. DODD. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

Mr. McCamy, at the conclusion of a witness' testimony before this committee, he is entitled to 5 minutes in which to explain or in any way expand upon the testimony he has given this committee. I, at this time, extend to you 5 minutes, if you so desire.

Mr. McCAMY. I have no comments.

Chairman STOKES. All right.

We thank you very much for your testimony here this morning and you are excused, sir.

Mr. GOLDSMITH. Thank you, Mr. McCamy.

Chairman STOKES. Mr. Blakey.

Mr. BLAKEY. Thank you, Mr. Chairman.

The photographic analysis was, of course, only an underlying fact from which the trajectory analysis could proceed. The trajectory analysis itself was a joint effort between the committee and the National Aeronautics and Space Administration. An engineer with NASA's Space Project Division, Tom Canning, constructed the final product from information provided by the committee from its various panels.

Mr. Canning received a B.S., cum laude, in mechanical engineering and an M.S. in aeronautics from Stanford University. Since joining NASA in 1943 as an aeronautical research scientist, he has been the Branch Chief of the Hypersonic Free-Flight Branch, Group Leader of the Probes System Group of Pioneer-Venus Mission, and currently he is Staff Engineer of the Space Projects Division.

Mr. Canning received the NASA Medal for Exceptional Scientific Achievement for his work in atmosphere entry body research for Mercury, Gemini, and Apollo. During his 23 years of work with the Hypersonic Free-flight Branch he has conducted and supervised research in the flight trajectory and stability of high speed projectiles and missiles. He has published numerous papers in that field.

Mr. Chairman, it would be appropriate now to call Mr. Canning.

Chairman STOKES. The committee calls Mr. Canning.

Sir, would you please stand and raise your right hand to be sworn?

Do you solemnly swear that the evidence you will give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

Mr. CANNING. I do, yes.

Chairman STOKES. Thank you.

You may be seated.

Mr. Goldsmith?

Mr. GOLDSMITH. Thank you, Mr. Chairman.

If I may have a moment.

For the record, sir, would you please state your name and occupation?

TESTIMONY OF THOMAS CANNING

Mr. CANNING. I am Tom Canning. I am Staff Engineer for the Space Projects Division of NASA Ames Research Center.

Mr. GOLDSMITH. Mr. Canning, I would like to ask you to move the mike somewhat closer to you and to speak directly into it. Thank you.

Would you define for the committee what the concept of trajectory is?

Mr. CANNING. Trajectory is simply the path taken by a missile as it travels through space.

Mr. GOLDSMITH. Do different missiles or projectiles have different types of trajectories?

Mr. CANNING. Yes, they do. If we, for instance, have a missile that travels a great distance, its position will be strongly affected by the gravitation of Earth. If it is flying through an atmosphere, it will be affected by the aerodynamic forces on it.

Mr. GOLDSMITH. What type of trajectory is involved in the case of a bullet that travels a distance of less than 100 yards?

Mr. CANNING. For a high-speed bullet the effects of the aerodynamics and of the gravity are very small, so that we can consider the trajectory essentially a straight line.

Mr. GOLDSMITH. How is this kind of trajectory specified or characterized?

Mr. CANNING. We can specify any particular straight line simply by locating two points in space that are on that line.

Mr. GOLDSMITH. And once you have located those two points, for purposes of referring to the trajectory, would you refer to it by direction?

Mr. CANNING. Yes; one would specify for convenience a direction which would be, say, northeast, southwest, whatever, and then one would specify the slope along which the projectile or missile traveled relative to the horizontal.

Mr. GOLDSMITH. So that the two basic ways to characterize the trajectory then I take it are by slope and direction.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. And what basic information is necessary to determine a trajectory?

Mr. CANNING. We must first identify where the two points are in space so that we can then construct that line.

Mr. GOLDSMITH. At this point I would ask that the witness be given an opportunity to examine JFK Exhibit F-361, which is the aerial photograph on the left, and JFK Exhibit F-133, that is, the survey map.

Would you identify that survey map, Mr. Canning?

Mr. CANNING. The survey map was the one that was prepared for us, on contract. It served to verify the position of all of the important structures in Dealey Plaza.

Mr. GOLDSMITH. Is the survey map shown an accurate scaled drawing of the Dealey Plaza area?

Mr. CANNING. Yes, it is.

Mr. GOLDSMITH. Where on that map is the Texas School Book Depository located?

Mr. CANNING. It is where Mrs. Downey is pointing, up there, at the top of the figure.

Mr. GOLDSMITH. Mrs. Downey, I would ask you now to refer to the other exhibit, and show where the Texas School Book Depository is located.

Thank you.

Is the height of the depository building accurately indicated?

Mr. CANNING. For our purposes, we wished to identify a particular level for reference on the building, and that was done correctly.

Mr. GOLDSMITH. Now referring to the survey map, I take it then that the height of the building is accurately indicated on the survey map?

Mr. CANNING. Yes.

Mr. GOLDSMITH. What is the height of the sixth floor, specifically?

Mr. CANNING. It is just slightly over 60 feet above the street level.

Mr. GOLDSMITH. Is this the map that you used for your trajectory analysis of the bullets that hit President Kennedy and Governor Connally?

Mr. CANNING. Yes, it is.

Mr. GOLDSMITH. What specific information, in addition to this map, did you need to determine the trajectory of these bullets?

Mr. CANNING. We needed first and foremost an accurate identification of the inshoot and outshoot wounds and their exact locations.

Mr. GOLDSMITH. Did you need any information about the location of the limousine?

Mr. CANNING. We needed to know the location of the limousine, and we needed to know the location of the people in the limousine, and, in two cases we needed to know the actual angular orientation of the people in the limousine.

Mr. GOLDSMITH. At this time I would ask that the witness be shown what has been marked for identification as JFK No. F-146.

Mr. Canning, I would ask you to read that exhibit and to indicate whether the prerequisites necessary to determining the trajectory of these bullets are accurately summarized on this chart.

Mr. CANNING. Yes, those are precisely what one needs to do the job.

Mr. GOLDSMITH. Fine.

How was all of this information made available to you, sir?

Mr. CANNING. It was made available from a variety of sources. The forensic pathology panel supplied the wound information. The USGS survey map that we have on the right was another source and then the photographic record made by the various amateur photographers in the plaza were used to supply most of the third.

Mr. GOLDSMITH. How many trajectories did you attempt to determine for the committee?

Mr. CANNING. Three.

Mr. GOLDSMITH. My understanding is, at least according to the present record, only two bullets struck the President and the Governor, one striking the Governor, two striking the President.

Why is it that you determined three trajectories?

Mr. CANNING. We determined three trajectories in order to examine the validity of the single bullet theory that has received so much attention.

Mr. GOLDSMITH. What specific trajectories did you attempt to construct?

Mr. CANNING. A trajectory based on the two head wounds in the President, a second trajectory based on the two wounds, one in his upper back and the other near the center of his neck, and the third

trajectory was based on the hypothesis that the projectile which came out of Mr. Kennedy's neck passed into the back of Governor Connally.

Mr. GOLDSMITH. You made reference a moment ago to the President's two head wounds.

By that, what were you referring to?

Mr. CANNING. I was referring to the wound in the back of his head which was caused by entry of a rifle bullet and a wound forward of that and to the right where the bullet exited his head.

Mr. GOLDSMITH. Did the committee express any reason to you for why it wanted more than one trajectory to be constructed?

Mr. CANNING. Yes, they did. The rationale was that we would like to find out if the trajectories corresponded to one or more launch locations or firing locations.

Mr. GOLDSMITH. Fine.

From which of these trajectories, Mr. Canning, did you have the best photographic evidence available to assist you?

Mr. CANNING. The head wound case had perhaps the most unequivocal photographic evidence.

Mr. GOLDSMITH. Would you summarize now what evidence was available?

Mr. CANNING. The key evidence for this case was a motion picture frame taken from the Zapruder film, Frame No. 312, and there were two additional motion pictures taken at that time, one by Nix and another by Muchmore, which aided in the interpretation of those movies.

Mr. GOLDSMITH. In what way was this photographic evidence better than the photographic evidence that was available for the other shot?

Mr. CANNING. In large measure simply because we knew the time at which the President's fatal wound occurred very precisely. In addition the head provides a rigid reference system, while the rest of the body's relatively flexible structure is capable of movement and distortions.

Mr. GOLDSMITH. Now, I notice that from this chart labeled "Elements to Determining Trajectory of the JFK-JBC Bullets" the first step in determining the trajectory is to establish the wound locations.

Referring now to the trajectory that you constructed for the bullet that hit the President's head, how was the information about the President's wounds given to you?

Mr. CANNING. That was given as physical descriptions, word descriptions, including the dimensions of the inshoot and outshoot wound locations.

Mr. GOLDSMITH. By "dimensions," I take it then that you were even quantified information about the location of the wounds?

Mr. CANNING. That is true.

Mr. GOLDSMITH. Why was it necessary to quantify the locations?

Mr. CANNING. Again simply because we must establish those wound locations in space, and therefore we must have actual numbers in centimeters where the wounds were actually found to be.

Mr. GOLDSMITH. Do you know on what basis the location of the wounds was quantified?

Mr. CANNING. It was established by measurements from X-rays and from photographs made during the autopsy of the President.

Mr. GOLDSMITH. At this time I would ask that the witness be given an opportunity to examine what has been marked as JFK No. 147 and JFK No. 137.

I should correct myself. That is F-147 and F-137.

Mr. Canning, examining these two exhibits, one of which is marked "Location of Head Wounds in President Kennedy," actually they are both marked the same way. They just show it from a different perspective.

I would ask you whether the wounds are accurately represented in these exhibits in the manner that you used them in your trajectory analysis.

Mr. CANNING. Yes, the positions are accurately represented there as I used them.

Mr. GOLDSMITH. Are these diagrams drawn to scale?

Mr. CANNING. The diagram on the left is actually generated from a tracing of a premortem X-ray that had been taken of the President's head, so that one is a true scale representation of the President's skull.

Mr. GOLDSMITH. That is the one that shows the right lateral view?

Mr. CANNING. That is the right lateral view; correct.

Mr. GOLDSMITH. And what about the one on the right, sir?

Mr. CANNING. The diagram on the right is based on a tracing taken from a textbook; the actual measured positions of the wounds are indicated by the dimensions shown in the diagram.

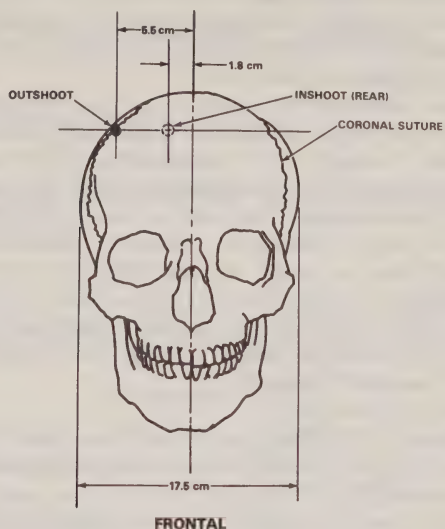
Mr. GOLDSMITH. Which textbook was that drawing taken from?

Mr. CANNING. That was drawn from Gray's Anatomy.

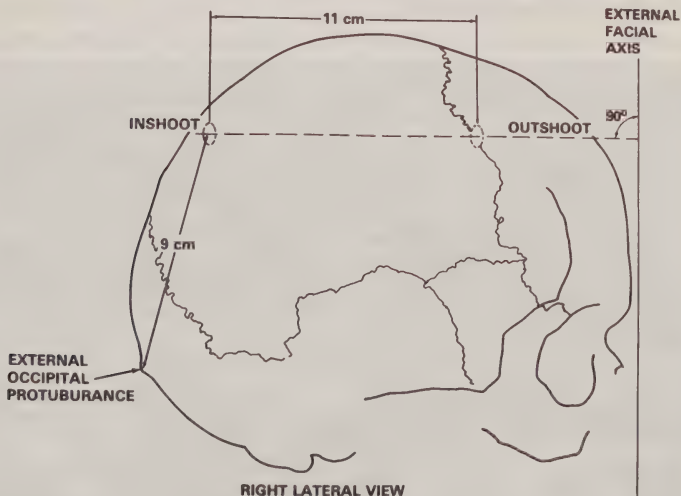
Mr. GOLDSMITH. Mr. Chairman, I move for the admission of these two exhibits.

Chairman STOKES. Without objection, they may be entered into the record at this point.

[The information follows:]

LOCATION OF HEAD WOUNDS IN PRESIDENT KENNEDY

JFK EXHIBIT F-147

LOCATION OF HEAD WOUNDS IN PRESIDENT KENNEDY

JFK EXHIBIT F-137

Mr. GOLDSMITH. Mr. Canning referring to these two exhibits, I would ask you to describe the location of these wounds, the President's wounds as they were quantified for you.

Mr. CANNING. The inshoot wound as shown in the right lateral view was determined by the forensic pathology panel to be 9 centi-

meters above the external occipital protuberance which is a little pointed structure at the base of the skull.

That inshoot wound was shown, and it is dimensioned in the right-hand figure, the frontal view, as being 1.8 centimeters to the right of the mid-plane of the skull.

The outshoot wound was shown to be 5½ centimeters to the right and to lie on what is called the coronal suture.

The outshoot wound is 11 centimeters forward of the inshoot wound. If one draws a line straight from the inshoot wound forward through the outshoot wound in the right lateral projection, it turns out to be very close to 90° relative to the external facial axis as determined from a study of the relative tissue thicknesses, of American males.

Mr. GOLDSMITH. Mr. Canning, what frame of the Zapruder film was used as the basis for determining the trajectory of the bullet that hit the President's head?

Mr. CANNING. Frame 312.

Mr. GOLDSMITH. Mr. Chairman, at this time I ask that the witness be given an opportunity to examine what has been marked for identification as JFK F-134.

Mr. Canning, would you identify that exhibit or that item?

Mr. CANNING. This is an enlargement of an enhanced photograph, an enhanced reproduction of the Zapruder Frame 312.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit, and also for the admission of JFK F-146.

Chairman STOKES. Without objection, they may both be received. [The information follows:]



JFK EXHIBIT F-134

Elements to Determining Trajectory of the JFK-JBC Bullets

- 1. Establish Wound Locations**
- 2. Establish the Location of the Presidential Limousine.**
- 3. Establish the Orientation and/or Relative Alignment of the Limousine Occupants.**

JFK EXHIBIT F-146

Mr. GOLDSMITH. Now why was this specific frame used to determine the trajectory of the head shot bullet?

Mr. CANNING. Because it was taken such a very short time before the fatal bullet struck the President.

Mr. GOLDSMITH. Are you able to indicate more precisely how short a time?

Mr. CANNING. The shortest time that it is likely to have been is about a 35th of a second. It may have been slightly longer than that.

Mr. GOLDSMITH. Is this the frame on the Zapruder film that is immediately before the one that shows the President's head exploding?

Mr. CANNING. That is correct.

Mr. GOLDSMITH. I would refer your attention now, Mr. Canning, to the survey map.

Mrs. Downey is going to point out to you the location of the limousine at frame 313.

Now at this time I would like to refer you to the testimony of Mr. McCamy earlier this morning.

Were you present for that testimony?

Mr. CANNING. Yes, I was.

Mr. GOLDSMITH. Do you understand how the limousine was placed in that position for frame 313?

Mr. CANNING. Yes, I do.

Mr. GOLDSMITH. Did you use frame 313 for your analysis?

Mr. CANNING. No. I used it only as a basis for a calculation of where the car must have been at 312.

Mr. GOLDSMITH. So on what basis did you move the limousine from its position at Frame 313 to its position at Frame 312?

Mr. CANNING. I found the speed of the automobile down Elm Street by the study of the whole record, and then adjusted the position of the limousine accordingly for one-eighteenth of a second.

Mr. GOLDSMITH. What was the adjustment that you had to make to the determination made by the U.S. Geological Survey?

Mr. CANNING. A little less 1 foot.

Mr. GOLDSMITH. Once the limousine had been located in Dealey Plaza, how was the orientation of President Kennedy's head at the time of the head shot determined?

Mr. CANNING. It was determined by studying features in the photograph of his head, actually the photograph in exhibit JFK F-134.

Mr. GOLDSMITH. What is the first step in determining this orientation?

Mr. CANNING. It is to find what the relationship is between President Kennedy's head and the line of sight from the camera.

Mr. GOLDSMITH. By "camera" now, you are referring to Zapruder's camera?

Mr. CANNING. To Zapruder's camera; that is correct.

Mr. GOLDSMITH. Could you define what you mean when you say that the orientation of President Kennedy's head must be established relative to Zapruder's line of sight?

Mr. CANNING. It is a matter of determining the angular relationship, how far the President is turned away from looking straight at the camera, for instance, how far his head is nodded forward, how far his head is tilted away from the camera.

Mr. GOLDSMITH. I would ask Mrs. Downey now to go to the survey map, and would you indicate for her, Mr. Canning, where Mr. Zapruder was standing at the time that Frame 312 was shot?

Mr. CANNING. He was standing on the concrete pedestal, at the west end of the wide stairs in front of the arcade. The pedestal appears as a black rectangle in the exhibit.

Mr. GOLDSMITH. How was that determined?

Mr. CANNING. That was determined by his own testimony and also by the photographic record of many other photographers in the plaza at the time.

Mr. GOLDSMITH. Thank you, Mrs. Downey.

Now I understand from your testimony then that the first step is to determine the orientation of the President's head relative to Mr. Zapruder's camera.

How did you proceed to make that determination?

Mr. CANNING. We did it by means of what I call calibration photographs of an anthropometric replica of the President.

Mr. GOLDSMITH. At this time I would ask that the witness be shown what has been marked for identification as JFK No. F-141.

Mr. Canning, would you identify this exhibit, and after doing so, please explain what you mean by "calibration photograph"?

Mr. CANNING. This is a photograph of a likeness, not intended to give the appearance but to have the same geometric form as the President, and it was photographed with reference markers adjacent to it so that we can make accurate interpretations of the photograph.

Mr. GOLDSMITH. Are those reference marks indicated in the photograph?

Mr. CANNING. Yes. The essence of the reference system is shown by that vertical line at the extreme right of the photograph with the little bead that is on it. That is a vertical line made with a plumb bob.

Mr. GOLDSMITH. Was this the only calibration photograph that you made?

Mr. CANNING. We made a large array of photographs taken from angles like this but different by several degrees, both sideways and up and down.

Mr. GOLDSMITH. What is the basic purpose of taking calibrated photographs?

Mr. CANNING. The purpose is to make direct comparisons of frame 312 and the calibration photographs. The positions of various features relative to one another are studied in various combinations.

Mr. GOLDSMITH. Does a calibrated photograph facilitate measurement?

Mr. CANNING. I would hesitate to make that measurement any other way. It would call for just simply "eyeball" estimates to do it any other way that I know of.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission into the record of JFK F-141.

Chairman STOKES. Without objection, it may be entered into the record.

[The information follows:]



JFK EXHIBIT F-141

Mr. GOLDSMITH. Mr. Canning, you made reference to an anthropometric replica that was used for this calibrated photograph. By whom was this replica prepared?

Mr. CANNING. The replica was prepared by the Physical Anthropology Section of the Federal Aviation Administration.

Mr. GOLDSMITH. What information did they use to prepare the replica of the President?

Mr. CANNING. They used a large array of photographs that were obtained from the Archives of the United States. These photographs were all taken during the last 2 or 3 years of the President's life.

Mr. GOLDSMITH. Did they also rely upon X-rays?

Mr. CANNING. No.

Mr. GOLDSMITH. Why was an actual replica of the President's head necessary?

Mr. CANNING. Because we wanted to have an objective model which showed the relative positions of all of the various features which one can actually see such as the back of the head, the position of the ear, which is very important, the projection of the nose beyond the rest of the facial profile, the shape of the brow features of this sort.

Mr. GOLDSMITH. You have indicated that the series of calibration photographs were taken.

Would you describe somewhat the procedure for taking these photographs?

Mr. CANNING. The dummy was placed in the middle of a large photographic studio on a pedestal and illumination was provided which gave at least a fair simulation of the sunlight illumination on the President's face at the time of the assassination.

An array of camera positions was marked out on the floor of the studio in a large circle, and points on that circle were marked to establish the required directions from which pictures were to be taken. The camera was then positioned above these points on the floor at varying heights to get different slopes of a the line of sight to the dummy.

Mr. GOLDSMITH. Did you encounter any difficulties in interpreting Zapruder frame 312?

Mr. CANNING. Yes. It is really quite a difficult frame to work with.

Mr. GOLDSMITH. Perhaps I would ask you to step up to that exhibit and point out the difficulties you encountered.

Would someone please hand Mr. Canning a microphone?

Mr. CANNING. It was quite critical in order to determine the angle of the head relative to the camera—

Mr. GOLDSMITH. Excuse me, Mr. Canning, would you please step back?

Mr. CANNING. Stand further back?

I beg your pardon.

How about if I move to here?

We are interested in the relationships of such features as the back and front of the head and the ear. The background surrounding the President's head in the picture is very complicated. It contains elements of whatever object makes this blue feature between his face and Mrs. Kennedy's. There are pink regions which correspond to Mrs. Kennedy's suit, and then there are very dark regions which correspond to the lapel of her blouse. In inferior reproductions which are much more common than good ones, we are simply unable to locate the President's with precision. The immediately preceding Zapruder frames are similar in this regard.

Mr. GOLDSMITH. Mr. Canning, you mentioned that this was an enhanced photograph. I realize this is an enlargement of that enhancement.

Could you indicate generally what type of enhancement work was done in this photograph.

Mr. CANNING. The principal effort was to achieve edge enhancement. This is a technique which I am not expert in, the technique used.

The other feature of the reproduction process was the very careful attention paid to color. Both edge enhancement and the clear colors provide the vivid indication of his facial features.

Mr. GOLDSMITH. Thank you, Mr. Canning.

Please resume your seat.

Now after taking these calibration photographs and studying frame 312, what did you determine the orientation of President Kennedy's head relative to Zapruder's line of sight to be?

Mr. CANNING. That is most easily portrayed by going through the motions of establishing the relationship as I describe the process.

Let me put myself in the position of being the President, and you, Mr. Goldsmith, in the position of Mr. Zapruder. I start out looking straight forward at you, then turn my head to my left like this, by 115° , namely, about 25° past a perfect profile view, then if I nod my head forward by about 11° and then tilt my head away from you by about 15° , that gives you the right perspective. So let me go through those motions so it will be clear what I mean.

Mr. GOLDSMITH. Please do.

Mr. CANNING. First, the 115° turn like this, then a nod forward like this, and then tilt the head away like this.

Mr. GOLDSMITH. Thank you.

At this time I would ask that the witness be given the opportunity to examine JFK F-138.

Mr. Canning, I am going to ask you to step up to the easel again. I am sorry.

Actually this is a combination of two exhibits, and I would ask, Mr. Canning, that you identify the information contained in this exhibit.

Mr. CANNING. The major part of this exhibit is a scaled reproduction of the topographic survey with a lot of detail removed for clarity. The position of the Presidential limousine at the time frame 312 is indicated. The insert is a scale representation of the rear portion of the limousine and the position of the President in the limousine is shown for the time of frame 312.

Mr. GOLDSMITH. Where specifically in that exhibit is the President's orientation at 312 shown?

Mr. CANNING. The emphasis is placed on showing that in the set drawing, as we see him from directly above.

Mr. GOLDSMITH. And what is the purpose of the other part of that exhibit?

Mr. CANNING. It is to illustrate the angular position of the President's head relative to the line of sight from Mr. Zapruder's camera.

Mr. GOLDSMITH. Now looking at the smaller limousine, I notice that there is a line going back to the book depository and there is also a line going in the other direction—

Mr. CANNING. Yes.

Mr. GOLDSMITH [continuing]. Approximately 85° .

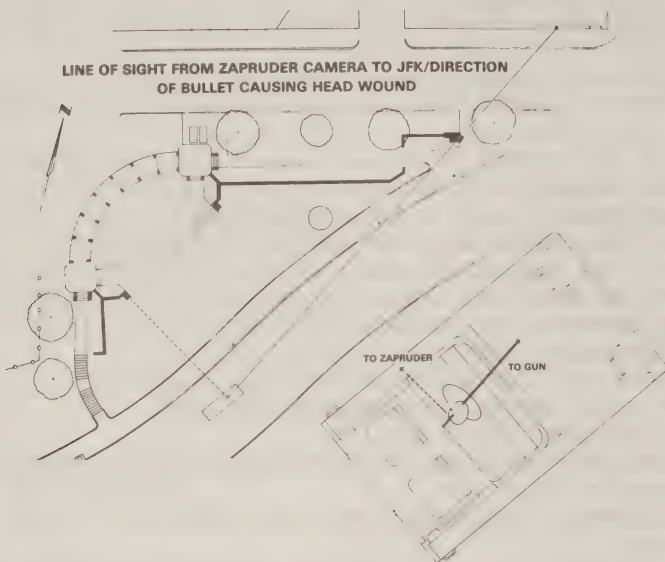
Where is that other line heading toward?

Mr. CANNING. This is the location of Mr. Zapruder with his camera, and this is the location of the President's head at that time.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit.

Chairman STOKES. Without objection, it may be received into the record.

[The information follows:]



JFK EXHIBIT F-138

Mr. GOLDSMITH. Mr. Canning, I ask that you remain standing for the time being.

Would you explain now what is the second step that you went through after having determined the orientation of the President's head relative to the Zapruder camera? What was the next procedure that you had to go through?

Mr. CANNING. The next step is to identify the position of the wounds in his head, which are shown essentially at the ends of the solid lines shown in exhibit JFK F-138. This illustrates the positions of the wounds.

Mr. GOLDSMITH. Once you have the wounds and you also have the orientation of the head relative to Zapruder's camera, are you able to determine the trajectory?

Mr. CANNING. Yes. We can determine from the information here the direction of the trajectory by simply determining the angular difference in this plan view between the line from Zapruder's camera to the President's head and the line that is generated by drawing a straight line between the inshoot and outshoot wounds.

Mr. GOLDSMITH. In effect, by doing that, are you determining the orientation of the President's head to the entire Dealey Plaza area?

Mr. CANNING. This establishes the direction relationship between line of sight from Zapruder's camera and the bullet's trajectory.

Mr. GOLDSMITH. Is it necessary to determine the orientation of the President's head not just to the line of sight of Zapruder's camera, but to the entire Dealey Plaza area?

Mr. CANNING. Yes, it is.

Mr. GOLDSMITH. And how is that done?

Mr. CANNING. That is done by locating the limousine, as was done using the U.S. Geological Survey analysis of the limousine's position. We can then determine the position of the camera's line of sight relative to Dealey Plaza at time of frame 312.

Having determined that, we can then fix the direction of the line representing the trajectory direction.

Mr. GOLDSMITH. I see.

Mr. Canning, please remain standing, and at this time I would ask that you be given an opportunity to examine what has been marked as JFK No. F-139.

Would you identify that exhibit, sir?

Mr. CANNING. This is a side view, an elevation view, a good deal like an architect's drawing, which is consistent with the view that we have just been looking at, which was the plan view.

Mr. GOLDSMITH. Is that diagram drawn to scale?

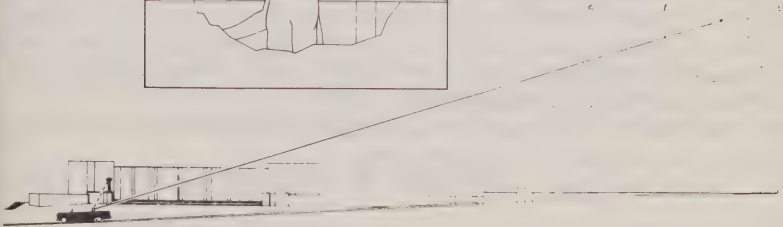
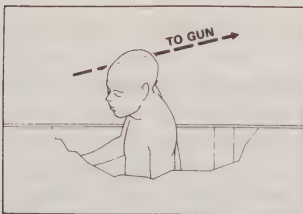
Mr. CANNING. Yes.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]

**LINE OF SIGHT FROM ZAPRUDER CAMERA TO JFK/SLOPE
OF BULLET CAUSING HEAD WOUND**



JFK EXHIBIT F-139

Mr. GOLDSMITH. Mr. Canning, at this time I would ask you to refer to both of the scaled diagrams before you, and explain the results of your trajectory analysis.

Mr. CANNING. Going back to the previous exhibit, the direction from which the bullet came to strike the President, the rear of the president's head, and come out the right side, is portrayed in the Dealey Plaza. The indication is that the bullet started near where the trajectory line intercepts the face of the School Book Depository.

Mr. GOLDSMITH. Now earlier this morning you testified that a trajectory is characterized, or at least this kind of trajectory is characterized, by direction and slope.

Are you now referring then to the direction aspect of the bullet's trajectory?

Mr. CANNING. That is correct.

Mr. GOLDSMITH. And what does the other diagram indicate?

Mr. CANNING. Exhibit JFK F-139 indicates the slope of the trajectory based on the relative vertical positions of the inshoot and outshoot wounds and the position and attitude of the President's head. The line that is drawn through those two wounds terminates at a spot on the face of the Texas School Book Depository building as shown in the exhibit.

Mr. GOLDSMITH. Now I notice that there is a circle drawn around the spot on the face of the building that you were just referring to.

What does that circle signify?

Mr. CANNING. That circle is intended to indicate the relative precision of the overall analysis.

Mr. GOLDSMITH. In effect, then, does that reflect the margin of error?

Mr. CANNING. Yes.

Mr. GOLDSMITH. How did you determine what the margin of error was with regard to this trajectory?

Mr. CANNING. I simply went through each stage of a trajectory analysis and made a point-by-point estimate of how accurately I could make that step. Having done that, I then made a simple analysis which indicated how those errors might combine, and the end result is shown here.

Mr. GOLDSMITH. Would you summarize what steps you went through?

Mr. CANNING. Well, the steps again go back essentially to the elements of determining the trajectory, as was shown on the earlier chart. It was difficult to determine the position of the outshoot wound with great precision. This was an important source of potential error. To establish the orientation of the President's head is the other part that gave great difficulty.

Mr. GOLDSMITH. So I take it then that No. 2, locating the limousine, does not account for much error.

Mr. CANNING. Very, very little. It is an unimportant source of error.

Mr. GOLDSMITH. Fine.

At this time I would ask that what has been marked as JFK No. F-122 be displayed.

Mr. Canning, can you identify this item?

Mr. CANNING. This is a photograph of the upper floors of the southeast corner region of the Texas School Book Depository building.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this item.

Mr. DODD. Without objection, it is so ordered.

[The information follows:]



JFK EXHIBIT F-122

Mr. GOLDSMITH. Mr. Canning, I would ask you now to indicate where in that building the circle reflecting the margin of error could be shown?

Mr. CANNING. That is shown in an overlay which I prepared this morning. This is an approximation of that other circle. The reason that it is oval is because the perspective of this picture is very different from that in the drawing in exhibit JFK F-139.

Mr. GOLDSMITH. Essentially that circle covers the top four floors of that building; is that correct?

Mr. CANNING. Yes; it includes one, two, three, four floors and the top of the building. It extends slightly beyond the building at the southeast corner and extends over to the edge of the photograph here.

Mr. GOLDSMITH. Thank you, Mr. Canning.
Please resume your seat.

After completing the trajectory of the bullet that struck the resident's head, what was the next trajectory that you attempted to derive?

Mr. CANNING. The trajectory based on the back and neck wounds of the President.

Mr. GOLDSMITH. And again I take it the first step would have been to establish the location of these wounds.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. What information were you given by the committee's forensic pathologists with regard to the location of these wounds?

Mr. CANNING. I was given the distances of the wounds relative to good reference points in the body.

Mr. GOLDSMITH. Was the location of the wound actually quantified for you?

Mr. CANNING. Yes, it was.

Mr. GOLDSMITH. Why was this necessary?

Mr. CANNING. Again simply because of the first step in establishing a trajectory is that we must know as precisely as is reasonable the positions of those wounds.

Mr. GOLDSMITH. How was the location of the wounds quantified?

Mr. CANNING. It was determined from photographs that were taken during the autopsy and by measurements and notes that were taken at that time.

Mr. GOLDSMITH. At this time I would ask that Mr. Canning be shown what has been marked as JFK F-376.

Mr. Canning, are the President's wounds accurately represented in this exhibit in the manner that you used them in your trajectory analysis?

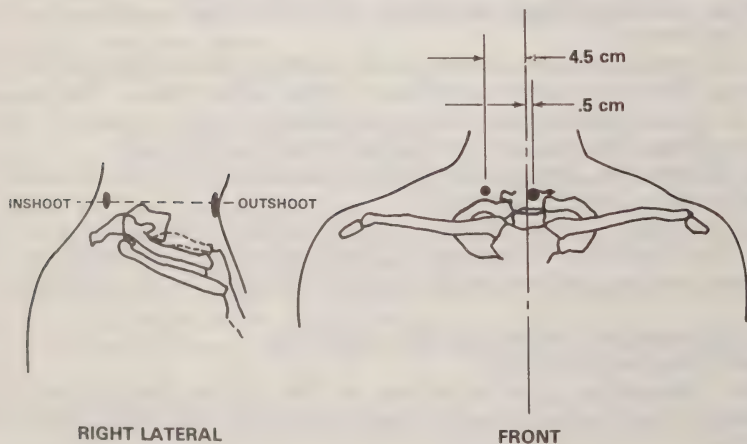
Mr. CANNING. Yes.

Mr. GOLDSMITH. Mr. Chairman, I move to admit this exhibit.

Mr. DODD. Without objection, it is so ordered.

[The information follows:]

J.F.K. WOUND LOCATIONS DEDUCED FROM PATHOLOGY PANEL REPORT (AUTOPSY POSITION)



JFK EXHIBIT F-376

Mr. GOLDSMITH. Thank you.

Would you now indicate where the President's back and neck wounds were located?

Mr. CANNING. The inshoot wound using the right lateral view in that figure showed that the wound was very high in the shoulder, just below the base of the neck at the back, and the projectile passed very close to the seventh cervical vertebra and near the first thoracic vertebra. The outshoot was through front of the neck.

Mr. GOLDSMITH. You are now making reference—excuse me for interrupting—to the right lateral view?

Mr. CANNING. That is correct.

Mr. GOLDSMITH. And on the other part of that exhibit is a frontal view; is that correct?

Mr. CANNING. And in the frontal view, the lateral positions of the two wounds are shown. The entry wound on the back was $4\frac{1}{2}$ centimeters to the right of the mid-plane of the body, and the neck wound was a small distance, about one-half centimeter to the left of the mid-plane.

Mr. GOLDSMITH. Mrs. Downey, would you go to that exhibit and point to the location of the wounds?

Mr. CANNING. The inshoot wound is as shown in the exhibit. It appears as the left-most wound in both diagrams.

Mr. GOLDSMITH. And the outshoot in that?

Mr. CANNING. And the outshoot is represented by the dark spot low in the neck and slightly to the viewer's right of center.

Mr. GOLDSMITH. Thank you.

Are these diagrams drawn to scale?

Mr. CANNING. No. These diagrams are taken from Gray's Anatomy. They are tracings of parts of figures in that textbook. The dimensions are the key information.

Mr. GOLDSMITH. Did you have to make any adjustments to the information that you were given concerning the President's wounds in order to construct your back neck trajectory?

Mr. CANNING. Yes, I did.

Mr. GOLDSMITH. Why was this necessary?

Mr. CANNING. Because the President, when these wounds were identified and measured, was lying in the autopsy position, which was very unlike his normal posture.

Mr. GOLDSMITH. How did you actually proceed to make the adjustments?

Mr. CANNING. I worked with the people at the FAA in Oklahoma City, the anthropological group there, and we made measurements of typical skin mobility. We studied this in order to find out how the wounds moved when the President was manipulated from his position and posture at the time he was wounded to the position and posture during the autopsy.

Mr. GOLDSMITH. What actual adjustment did you eventually make with regard to these wounds?

Mr. CANNING. The major adjustment was that during the autopsy, the President's head was pointed straightforward and was tilted back, so that he was essentially "looking at the sky," as a way of thinking of it, by about 35° . And when we return him to a normal posture, by lowering his chin, that wound, the neck wound, moves down about a centimeter. When the wound was inflicted, it has been concluded that his head was turned sharply to his right and that resulted in a small movement of the neck wound to Mr. Kennedy's right at the time. Also he was observed to have his right shoulder elevated in order to place his elbow on the side of the car. This didn't affect the position of the neck wound but it did elevate the position of back wound slightly.

Mr. GOLDSMITH. Did you have to make similar adjustments in the case of the President's head wound?

Mr. CANNING. No.

Mr. GOLDSMITH. Why not?

Mr. CANNING. Because the upper part of the head, is a rigid object, so wounds are not displaced by changes in position or attitude.

Mr. GOLDSMITH. Fine.

Now as I recall, you used frame 312 of the Zapruder movie to construct the head shot trajectory.

What frame of the Zapruder movie did you use for the back neck trajectory?

Mr. CANNING. I related the back neck trajectory to the positions at Zapruder frame 190.

Mr. GOLDSMITH. At this time I ask that JFK F-226 be shown to the witness.

Can you identify that item?

Mr. CANNING. That appears to be frame 190.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-226

Mr. GOLDSMITH. Thank you.

Why was this specific frame used to determine the trajectory of the back neck shot?

Mr. CANNING. During the investigation several weeks ago, there were indications that suggested this would be a proper time to consider for a first wound, in particular the investigations of the acoustics panel led to selection of this for our study at that time.

Mr. GOLDSMITH. Did you also rely upon any input by the photographic evidence panel? I am referring now specifically to the jiggle analysis that was performed by them.

Mr. CANNING. Yes, those two studies went on at the same time, and I tend in my own mind to sort of equate them, not that they are necessarily interchangeable.

Mr. GOLDSMITH. You did not participate in the acoustics study or in the jiggle study, did you?

Mr. CANNING. No.

Mr. GOLDSMITH. So you were simply given that information.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Mrs. Downey is going to refer your attention to the survey map, and I believe that the USGS indicated what the location of the limousine was for frame 193.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Why did they give you frame 193, do you know?

Mr. CANNING. As I understand it, it was because they got superior alignments of reference points for that.

Mr. GOLDSMITH. What adjustment, if any, did you have to make to locate the limousine in frame 190?

Mr. CANNING. I moved it, I moved the limousine, to the rear in order to account for its motion between frames 190 and 193.

Mr. GOLDSMITH. Approximately how great a distance did you move the limousine?

Mr. CANNING. A little less than 3 feet.

Mr. GOLDSMITH. Pardon me?

Mr. CANNING. A little less than 3 feet.

Mr. GOLDSMITH. What is your estimated margin of error for relocating the limousine?

Mr. CANNING. Oh, perhaps 6 inches.

Mr. GOLDSMITH. In addition to the Zapruder film, Mr. Canning, what photographic evidence did you rely upon with the back neck trajectory?

Mr. CANNING. The key photograph on which I relied was a photograph taken by Mr. Robert Croft.

Mr. GOLDSMITH. I would ask that JFK No. F-135 be displayed.

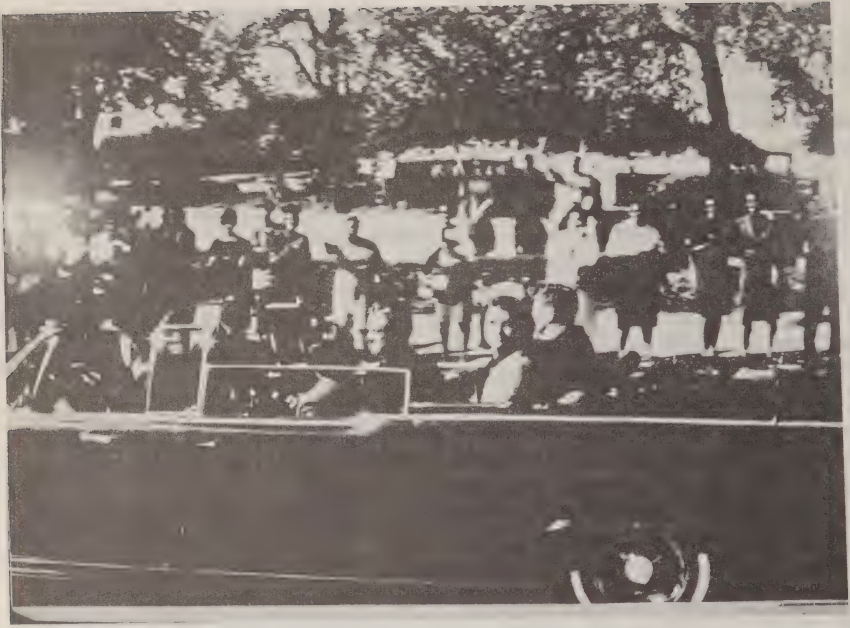
Would you identify this item, Mr. Canning?

Mr. CANNING. This is a photograph that was provided me by the staff that had been taken by Mr. Croft.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-135

Mr. GOLDSMITH. Did you rely upon any other photographic material, Mr. Canning?

Mr. CANNING. Yes, there were other photographs taken during this period which were quite useful, in particular a photograph taken by Mr. Willis.

Mr. GOLDSMITH. I would ask that JFK No. 155 be shown to the witness and entered into the record.

Chairman STOKES. Without objection, it may be entered into the record.

[The information follows:]



JFK EXHIBIT F-155

Mr. GOLDSMITH. Would you generally indicate, Mr. Canning, for what purpose you used these two photographs?

Mr. CANNING. I used these to determine the posture of the President and his orientation relative to his surroundings.

Mr. GOLDSMITH. What frames of the Zapruder film did these photographs correspond with?

Mr. CANNING. The Croft picture corresponds with frame 161. The Willis photograph corresponds with frame 202.

Mr. GOLDSMITH. How were these determinations made?

Mr. CANNING. They were determined by establishing lines of sight, in the case of the Willis photograph, between the photographer Willis and the photographer Zapruder. Zapruder can be seen over the left shoulder of the Secret Service agent standing on the following limousine, and in the Zapruder frame 202, one can see the photographer Willis taking his picture.

I think you also asked for the determination of how the other picture was taken. It was done by similar methods but it was not quite as direct, to determine the time of the Croft picture.

Mr. GOLDSMITH. Was this information given to you by members of the photography panel?

Mr. CANNING. Yes.

Mr. GOLDSMITH. Would you step to the easel now, Mr. Canning, and indicate how the orientation of the President at the time of the back neck shot was determined?

Mr. CANNING. The principal data which we have to establish the position of the President is this photograph. There are many others that give his general habit of sitting, but this one is particularly useful. It shows the form of his shoulder fairly clearly. We don't

see his far shoulder because of the photographic aspect, so we know that he has not turned sharply to his right. He is looking forward, but the key information here is the way in which he is seen to hunch forward. There is a considerable curvature of his back. Despite his torso leaning forward, he held his head in an essentially level position.

Mr. GOLDSMITH. Now you indicated that this photograph corresponds approximately with the Zapruder frame 161.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Assuming that the back neck shot occurred at frame 190, what would be the time differential between the time this photograph was taken and the time that Zapruder 190 was exposed?

Mr. CANNING. At 18 frames per second, we are talking about a difference of almost 30 frames, so it is slightly over 1½ seconds.

Mr. GOLDSMITH. What additional information did you obtain from the Willis photograph on your right, Mr. Canning?

Mr. CANNING. Essentially from the Willis photograph, which corresponds to frame 202, we obtained confirmation that the President's head was turned rather sharply to his right, and a further suggestion that his shoulders have not turned very much during the period between the Croft picture and the Willis picture.

Mr. GOLDSMITH. Thank you.

Please resume your seat.

What frames of the Zapruder movie, if any, did you rely upon in determining the President's orientation?

Mr. CANNING. I relied on several frames between 160 and 200 largely those selected for clarity.

Mr. GOLDSMITH. Did you conduct any photo calibration study with regard to this trajectory analysis?

Mr. CANNING. No.

Mr. GOLDSMITH. Why is it that you conducted one in the case of the head wound but not in the case of the back neck wound?

Mr. CANNING. Because the head is a relatively rigid object and is not subject to deformation due to changes in position, whereas the body is, and we did not want to build an anthropometric dummy that would give a false impression of precision or knowledge.

Mr. GOLDSMITH. Would you summarize now what you determined the President's orientation at the time of the back neck bullet to be?

Mr. CANNING. Largely from this picture and from the subsequent study of the Zapruder pictures, I concluded that he was hunched forward somewhere between 11 and 18 degrees forward of vertical in the upper torso, and that his shoulders were either facing straight ahead in the car or were turned slightly to the right or straight ahead.

Mr. GOLDSMITH. At this time I would ask that the witness be shown JFK F-140 and F-142.

Mr. Canning, I am sorry to do this to you, but I am going to ask you to step to the easel again.

For the record, the exhibit marked JFK F-140 is entitled "Direction of Bullet Causing JFK Back Neck Wound," and the one marked 142 is entitled "Slope of Bullet Causing JFK Back Neck Wound."

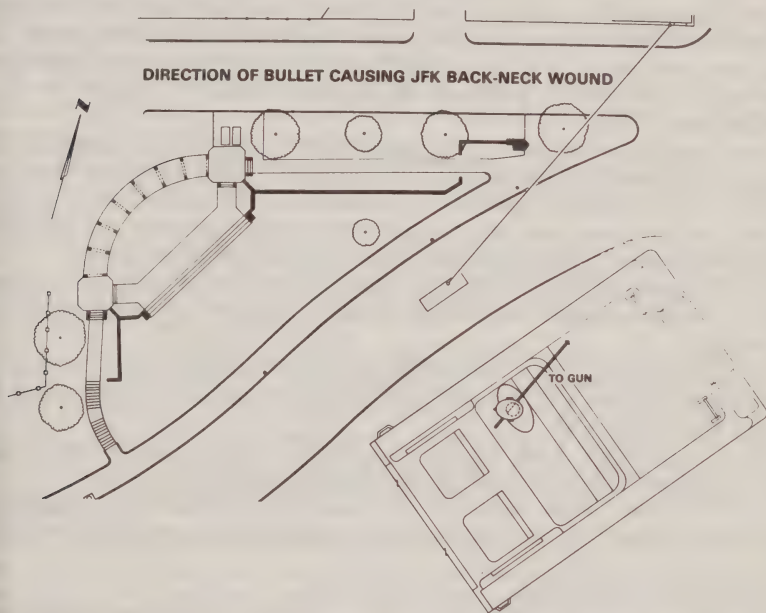
Mr. Canning, would you identify these two exhibits?

Mr. CANNING. The one on the direction of the bullet causing the back neck wound is the one here on our left.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of both of these items.

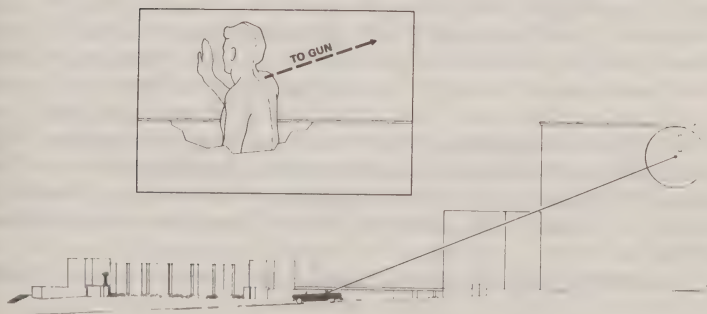
Chairman Stokes. Without objection, they may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-140

SLOPE OF BULLET CAUSING JFK BACK-NECK WOUND



JFK EXHIBIT F-142

Mr. GOLDSMITH. Again I take it that by referring to the trajectory by means of direction and slope, that is simply consistent with my earlier testimony.

Mr. CANNING. That is true.

Mr. GOLDSMITH. That is how trajectory is characterized.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Fine.

Would you proceed now to summarize your results of the back neck bullet trajectory?

Mr. CANNING. The position of the wounds in the President are shown at this small scale in this highly schematic form as entering just to the right of his neck, just to the right of his center plane, and exiting the forward part of his neck, and we then can establish a line like that shown in the inset relative to the limousine. The angular position of his torso, as I mentioned, was very slightly to the right of forward, perhaps straightforward. We can't be more precise than that.

Then transferring this information into the small image of the limousine placed in the plaza for frame 190, and keeping the same angular relationship between the wound line and the line along the side of the car, we can then draw a line showing the direction of the trajectory back up toward the school book depository.

Mr. GOLDSMITH. Mr. Canning, when you made reference to keeping the same angular relationship with respect to—what were you referring?

Mr. CANNING. I was referring to the angular relationship between this arrow and the side of the limousine, this line and the side of the limousine.

Mr. GOLDSMITH. And would you point to the end of that trajectory, in other words, where, in the building, that took you?

Mr. CANNING. This point on the face of the building is slightly to the west of the first window, at the southeast corner of the building.

Mr. GOLDSMITH. Fine.

Would you now explain the slope of the trajectory based upon the JFK back neck wound?

Mr. CANNING. Here again we see where the back wound was. We can see in the insert sketch of JFK F-142 some of the key information regarding the position of his shoulders. His right shoulder appears to be slightly elevated relative to his left, as determined from Zapruder's pictures, between frames 160 and 200. We include the wound position data interpreted from the forensic pathologist's report as modified to account for change in the President's posture and movement of his torso. The resulting difference in height of his back and neck wounds relative to the car gives us the slope relative to the car. Then we place the car on the sloping street in Dealey Plaza and maintain this same angular relationship between this line labeled "To Gun" in the exhibit and the line along the side of the limousine body.

Mr. GOLDSMITH. Mr. Canning, are these two exhibits drawn to scale?

Mr. CANNING. Yes.

Mr. GOLDSMITH. What is the margin of error indicated by the circle drawn around the end point of the trajectory?

Mr. CANNING. I believe the radius of the circle is about 13 feet.

Mr. GOLDSMITH. How was that determined?

Mr. CANNING. This was determined as before on the head wound case simply by making an estimate of the contribution of error at each stage of the analysis, and then combining those in order to obtain an estimate of the overall accuracy.

Mr. GOLDSMITH. Why was your margin of error less in this case than in the case of the head shot?

Mr. CANNING. In considerable measure because the distance from the limousine to the termination of this line was shorter.

Mr. GOLDSMITH. At this time I would ask that the witness be shown JFK No. F-122.

Would you indicate on this exhibit, Mr. Canning, where that margin of error circle would be shown?

Mr. CANNING. That margin of error circle is shown again in the handwrought curves produced this morning as this red ellipse in the overlay over the photograph.

Mr. GOLDSMITH. What was the most significant factor in this particular margin of error? In other words, what was your greatest difficulty?

Mr. CANNING. Essentially in determining, in making an estimate of the rotation of the President's shoulders relative to looking straight ahead, and in estimating what the inclination of his torso was from that one photograph.

Mr. GOLDSMITH. Mr. Canning, what impact would it have on your analysis if you were to reconstruct this trajectory based upon Zapruder frame 197? For example, that is when the acoustics panel says that the President may have been shot. If you were to reconstruct the trajectory at that frame, what effect would that have?

Mr. CANNING. I should have the plan view exhibit marked "JFK F-140" as well.

The relationships that we established in this exhibit gave us a line indicating the direction of the trajectory relative to the limousine itself. We have no good information that says that this relationship changed importantly with time. Therefore we would simply move the limousine to the new position and allow the trajectory line to travel with it; the result would be that the end point would move a short distance to the left in the figure and slightly upward as well, because the car is moving away from the building. So this point will not only move to the west, but it will rise, but it won't rise more than just a few feet.

Mr. GOLDSMITH. Thank you, sir.

Would you resume your seat now?

Mr. CANNING. Yes.

Mr. GOLDSMITH. At this time, Mr. Canning, I would like you to discuss the single bullet theory trajectory that you constructed.

My first question, is, again going by that chart, "Elements to Determining Trajectory," what information were you given about the location of Governor Connally's wounds?

Mr. CANNING. I was given the information that was generated by the medical reports at Parkland Hospital where his surgery was done, and more recently I examined the information in terms of the reported damage to his fifth rib.

Mr. GOLDSMITH. Of the wounds incurred by Mr. Connally, which did you rely upon for your analysis?

Mr. CANNING. Just the entrance wound.

Mr. GOLDSMITH. Why is that?

Mr. CANNING. Because of the considerable likelihood of larger deflections of the bullet's path in passing through him, since it hit his rib. The likelihood of deflection is greater than in the case of passage through the soft tissues of Mr. Kennedy's neck.

Mr. GOLDSMITH. What two points were you using to construct this particular trajectory?

Mr. CANNING. I was using the construction of a line based on the exit wound from Mr. Kennedy's neck, and the entrance wound as the bullet went into Mr. Connally's back.

Mr. GOLDSMITH. Was any attempt made to quantify the location of the entry wound in Mr. Connally's back?

Mr. CANNING. Yes.

Mr. GOLDSMITH. Why was that considered to be necessary?

Mr. CANNING. It is again necessary for step No. 1. We must know where those wounds are located in order to do the job.

Mr. GOLDSMITH. To what extent did you rely upon this information?

Mr. CANNING. I used the Parkland Hospital information.

Mr. GOLDSMITH. You stated you used the Parkland Hospital information. To what extent did you also rely upon, if you did at all, the information given to you by the committee's autopsy panel?

Mr. CANNING. I received information from the committee's autopsy panel on Sunday morning, September 10, 1978, this last Sunday, and I examined it to see if it was consistent with the early information, and I could find no important discrepancy.

Mr. GOLDSMITH. At this time I would ask that the witness be shown what has been marked for identification as JFK No. F-377.

Mrs. Downey, would you assist us by pointing to that exhibit at Mr. Canning's direction?

Referring to this exhibit, Mr. Canning, is Governor Connally's entry wound represented in the manner that you used it in your analysis.

Mr. CANNING. Yes, that is correct.

Mr. GOLDSMITH. Would you indicate now where those wounds are indicated?

Mr. CANNING. The wound was just inward, just toward the center plane of his body from his armpit, and it was high enough so that it could be consistent with a projectile striking his fifth rib.

Mr. GOLDSMITH. Mrs. Downey is now pointing to the entry wound?

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Thank you.

Thank you, Mrs. Downey.

Is this exhibit drawn to scale?

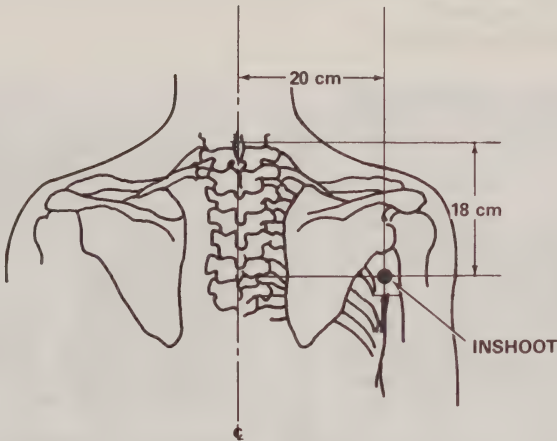
Mr. CANNING. It is dimensioned properly. It is actually a drawing that is based on a figure in Gray's Anatomy.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this item into the record.

Chairman STOKES. Without objection, it may be entered into the record.

[The information follows:]

LOCATION OF INSHOOT WOUND IN BACK OF GOV. CONNALLY



JFK EXHIBIT F-377

Mr. GOLDSMITH. You testified earlier, Mr. Canning, that you had to make adjustments in the locations of President Kennedy's wound, President Kennedy's back neck wound, I understand.

Did you have to make a similar adjustment in the case of Governor Connally's entry wound?

Mr. CANNING. No; I didn't note any major change from the position shown.

Mr. GOLDSMITH. What frame of the Zapruder film did you use to construct the single bullet theory trajectory?

Mr. CANNING. I used the same time of the frame 190 as I used for the back neck wound.

Mr. GOLDSMITH. So are you saying that the only thing that changed is that you now had to work in Governor Connally's wound locations in his orientation?

Mr. CANNING. That is correct.

Mr. GOLDSMITH. So the position of the limousine was the same.

Mr. CANNING. Yes.

Mr. GOLDSMITH. Did you do any additional work on President Kennedy's orientation?

Mr. CANNING. I did no additional work on the President's orientation.

Mr. GOLDSMITH. How was Governor Connally's alignment relative to President Kennedy determined?

Mr. CANNING. It was determined from the photographic record, from the Zapruder pictures and others.

Mr. GOLDSMITH. At this time I would ask that the witness be sworn what has been marked as JFK F-136 and F-143.

F-136 is an enlargement of a photograph taken by the photographer named Betzner, and F-143 is a scaled sketch that depicts the relative alignment of President Kennedy and Governor Connally as

that relative alinement has been deduced from the photographic evidence.

I move for the admission of these two items, Mr. Chairman.

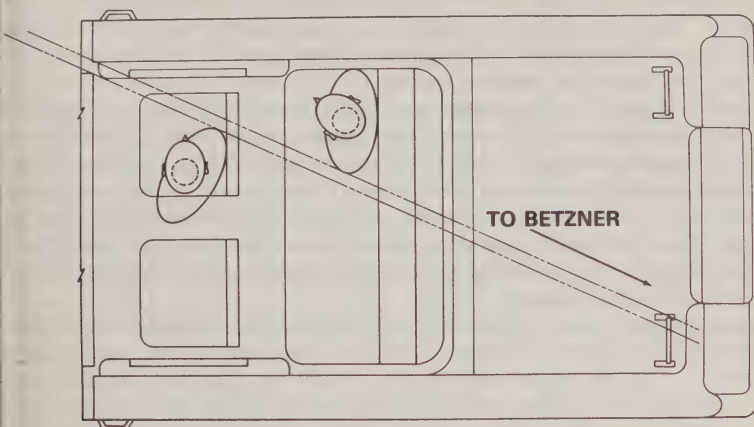
Chairman STOKES. Without objection, they may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-136

RELATIVE POSITIONS OF PRESIDENT KENNEDY AND GOVERNOR CONNALLY AS DEDUCED FROM PHOTOGRAPHIC EVIDENCE



JFK EXHIBIT F-143

Mr. GOLDSMITH. Mr. Canning, I would ask you to step to the easel again.

Before I ask any further questions I should correct my earlier statement.

F-136 actually has four pictures in it. The one at the upper left is the Betzner photograph, and the one in the upper right is a partial enlargement of a section of that Betzner photograph. The two photographs at the bottom are photographs of the Presidential limousine used on that day.

Mr. Canning, do you know with what frame of the Zapruder film the Betzner photograph corresponds?

Mr. CANNING. That corresponds with frame 186.

Mr. GOLDSMITH. And was that determined by use of the same method to which you referred earlier?

Mr. CANNING. It was determined by precisely the same method of sighting over the shoulder of the Secret Service agent to the photographer Zapruder.

Mr. GOLDSMITH. Now using the two exhibits that are before you, Mr. Canning, I would ask you to indicate to the committee how the relative position of Governor Connally to President Kennedy was determined.

Mr. CANNING. This involves working our way from the big picture, if you will, into small details, and then relating those to a drawing, the drawing of the limousine.

Let me start by identifying a few features just for orientation. We see the well-known Stemmons Freeway sign here, the photographer Zapruder. You can see the President's head down here highlighted by the sun, and we can see a bright spot here, which is the siren on the Secret Service vehicle which is following the Presidential limousine.

Going to the greatly enlarged inset, we see again the Stemmons Freeway sign. We see the siren, and we again see the President's head.

Now going further into this picture, looking for minute detail, we see, for instance, the spare tire enclosure on the Presidential limousine, and then looking very carefully we can see a rectangular object here. That rectangular object is a handhold which is on the trunk lid of the limousine. It is intended for the Secret Service men to hold on to when they are riding on the rear of the car.

Another feature that we see in this photograph is a diagonal feature here labeled No. 2, and this diagonal feature is the frame of the small window which was in front of and slightly to the right of Governor Connally. We can see that frame, and there is nothing to obstruct our view of it. So what we can do is to draw a line of sight from Mr. Betzner's camera, past the corner of the handhold over to the frame, let me show what that does on the photograph of the Presidential limousine.

One item in the large picture which I did not mention is, a man in the foreground; his shoulder and arm are obscuring everything to the left. That is what the dark object is. So we do not see Governor Connally in this picture. But the photograph puts a very stringent limit on how far to the right in the automobile the Governor can be sitting; that is, it says that the Governor must be sitting to the left of the line of sight past the man in the foreground.

Now to make this quantitative, we have drawn in, on a scale drawings of the limousine, the line from Mr. Betzner's camera past the inboard corner of the Secret Service handhold, and extended it forward to the position that is seen in the photograph. We also notice that in the Betzner photograph the line of sight passes right by the tip of the President's left shoulder. It is remarkably clear that that is the case. So we have drawn the President in this position with his left shoulder along that line of sight.

Since we know that we can see to the left of that by a short distance, and by careful triangulation, based on the known distance between the right-hand handle and the left one, we can then find out how much farther across toward the left we can see along this line of sight. We then constructed this line, and we know then that Governor Connally was to the left of that line at the time of the Betzner picture. This graphical reconstruction fixes the relative positions of the men quite satisfactorily.

Mr. GOLDSMITH. So in essence the line of sight from Mr. Betzner to the limousine establishes the point, furthestmost point, to the right in the limousine in which the Governor could be sitting.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Now why did you place the Governor in that plan view diagram as far to the right as you did?

Mr. CANNING. The Zapruder pictures tell us that he is not very much farther away, and so in order to make a clear and conservative analysis, I placed him in that position.

Mr. GOLDSMITH. Thank you.

Please resume your seat, Mr. Canning.

Mr. Canning, before I ask you to resume your seat, I would like you to review some frames in the Zapruder movie with us.

At this time I would ask that Mr. Canning be shown what has been marked as JFK Nos. 223, 229, 232, 236, and 240. These correspond with the Zapruder Frames No. 187, 193, 196, 200, and 204. Did you rely upon these frames in your analysis, Mr. Canning?

Mr. CANNING. Yes.

Mr. GOLDSMITH. Would you indicate in what manner you relied upon them to determine the Governor's orientation?

Mr. CANNING. The principal information we have on the Governor from these pictures is shown extremely clearly in this frame. We can see that his head is facing essentially straight, perpendicular to the line of the car, and we can see rather clearly his necktie, which indicates that his torso is turned somewhat past the line of sight from Mr. Zapruder's camera at the time. This then is a basis for an estimate of the angular orientation of his torso. We follow those same features, sometimes good pictures, sometimes blurry pictures, and we find that his orientation changes, but he is always turned substantially to the right during this time period.

Mr. GOLDSMITH. Mr. Canning, referring now to the Croft photograph behind the Zapruder frames, Mrs. Downey, could you possibly move that forward?

Mr. CANNING. That is a good idea.

Mr. GOLDSMITH. Thank you.

As part of your trajectory analysis, Mr. Canning, did you have to determine the distance between the President and the Governor?

Mr. CANNING. Yes. The distance between the President's neck and the Governor's back is an important part of the trajectory termination.

Mr. GOLDSMITH. Do you recall what that distance was measured to be?

Mr. CANNING. It is about 60 centimeters.

Mr. GOLDSMITH. And did you have to determine the relative height of the two men?

Mr. CANNING. Yes. It is apparent from the photograph that the President is sitting considerably higher than the Governor, and analysis was made to make that as quantitatively as accurate as possible.

Mr. GOLDSMITH. What input, if any, did the committee's photographic evidence panel have in assisting you with those measurements?

Mr. CANNING. The photographic panel did the analysis which gave the height difference between the men.

Mr. GOLDSMITH. Did you use any calibration photographs in attempting to determine the orientation of Governor Connally?

Mr. CANNING. No.

Mr. GOLDSMITH. Why not?

Mr. CANNING. It was not particularly important to determine the actual conformation of the Governor's body; only his body's position was critical.

Mr. GOLDSMITH. Mr. Chairman, at this time I move for the admission of JFK Nos. F-223, F-229, F-232, F-236, and F-240.

Chairman STOKES. Without objection, they may be entered into the record at this point.

The information follows:]



JFK EXHIBIT F-223



JFK EXHIBIT F-229



JFK EXHIBIT F-232



JFK EXHIBIT F-236



JFK EXHIBIT F-240

Mr. GOLDSMITH. Thank you.

I would ask at this time that the witness be shown what have been marked for identification as JFK Nos. F-144 and F-145.

Those can simply be placed on top of the Zapruder frames that we have.

Mr. Canning, can you identify these two items?

Mr. CANNING. These are scale drawings of a portion of the limousine, and of Dealey Plaza showing the position of the structures and the limousine at the time of Frame 190. The other exhibit is the corresponding elevation view showing the same information seen by a person viewing it from a great distance perpendicular to the trajectory direction line.

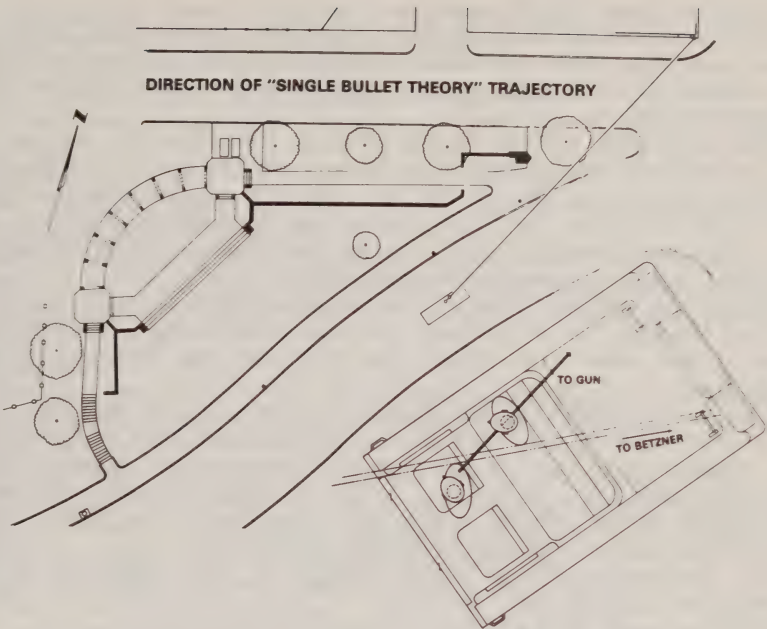
Mr. GOLDSMITH. Are these two exhibits designed to show the direction and slope of the trajectory?

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of these two exhibits.

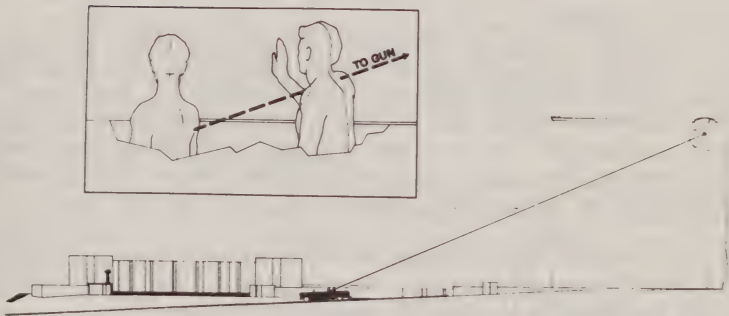
Chairman STOKES. Without objection, they may be entered into the record.

[The information follows:]



JFK EXHIBIT F-144

SLOPE OF "SINGLE BULLET THEORY" TRAJECTORY



JFK EXHIBIT F-145

Mr. GOLDSMITH. Mr. Canning, at this time I would like to ask you to explain your analysis of the single bullet theory trajectory, in light of these two exhibits.

Mr. CANNING. The inset is simply a replica of the drawing which we had before with the two lines established as lines of sight from Mr. Betzner's camera, with the President in the position that that analysis determined, the Governor in the position that that analysis showed, and then we have indicated schematically where the Governor's wound would show, and where the President's neck wound would show, to establish a line relative—again in the frame of reference of the limousine now, which would extend to the gun.

We then take this drawing and reduce it in size and place it in the correct position and angular orientation in the plaza, and take this same line with the same angular orientation relative to the limousine, and extend it to show the direction of the single bullet theory trajectory.

The side view picture using in large measure the information from the Croft photograph illustrates again the position of the back and neck wounds. We do not use the information for the President's back wound, just the information from his neck wound, and for Governor Connally's back wound and the relative positions and relative heights are registered in this drawing.

We simply draw a straight line from Governor Connally's inshoot wound through the President's outshoot wound and extend the line toward the point from which the gun was thus deduced to have been fired.

The side view of the limousine is shown as if it were on level ground. Therefore when we show it in the main part of the exhibit we preserve the angular relationship between the trajectory slope line and the body of the car. When this line is extended in the main part of the exhibit, it intercepts the face of the Texas School Book Depository as shown in exhibit JFK F-145.

Mr. GOLDSMITH. What is the margin of error indicated on this particular diagram, Mr. Canning?

Mr. CANNING. It is a little bit over 5 feet in radius.

Mr. GOLDSMITH. How was this margin of error determined?

Mr. CANNING. It was determined in the same manner as before, simply by estimating the contributions to uncertainty contributed at each stage of the trajectory determination.

Mr. GOLDSMITH. Why is this particular margin of error so much less than the others?

Mr. CANNING. This is illustrated by JFK F-145. The distance between the two men, about 60 centimeters or 2 feet, is about five times as great as that between the President's back and neck wounds. Therefore there can be much larger errors in determining relative positions of the wounds without increasing the resulting angular errors. The same contrast applies also to the accuracy of the single bullet trajectory relative to that of the head wounds case.

Mr. GOLDSMITH. Mr. Canning, to what extent, if any, would your results be different if you were to reconstruct the trajectory based upon the limousine's location in Zapruder Frame 197?

Mr. CANNING. Again the effect would be exactly the same as it would be in the case of the back neck wound. The final point would move, to the east and would rise slightly by just a matter of a few feet.

Mr. GOLDSMITH. Would it move to the east or to the west?

Mr. CANNING. It would move to the east and up.

Mr. GOLDSMITH. And would you indicate in that diagram which direction is east?

Mr. CANNING. East is to our left in this diagram.

I beg your pardon.

Mr. GOLDSMITH. Wouldn't that be the west?

Mr. CANNING. It is west. I knew I would blow that one. I said west one time and it was almost funny.

Yes, that is correct. This is to the west, and I think I said east earlier as well. That should be corrected.

Mr. GOLDSMITH. Thank you.

Mr. Canning, you may resume your seat now.

I am going to ask Mrs. Downey to work the overlay on exhibit No. 122.

Thank you.

Mr. Canning, would you describe the margin of error as indicated on the overlay of exhibit 122?

Mr. CANNING. That is the smallest oval which I generated this morning for the single bullet theory. It is black in the overlay.

Mr. GOLDSMITH. Mrs. Downey, would you point to that oval, please?

Thank you.

Mr. Canning, each of the three trajectories that you constructed had different slope, different direction, and a different margin of error.

What consequence, if any can you attribute to these differences?

Mr. CANNING. The differences may well arise simply because all measurements are imprecise, and it would simply be unrealistic to expect the slopes and directions to be identical.

Mr. GOLDSMITH. Thank you very much, Mr. Canning.

I have no further questions.

Chairman STOKES. The procedure at this point will be that the Chair will recognize the gentleman from Michigan, Mr. Sawyer, for such time as he may consume, after which the committee will operate under the 5-minute rule.

The Chair at this time recognizes Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman.

If I understand the procedure that you went through, you did not attempt to force the end of the line pointing toward the gun.

You let it fall where it may, starting from the wound, in effect, the position of the limo and the assumed posture based on the best evidence you could get.

Mr. CANNING. That is correct.

Mr. SAWYER. I am still a little puzzled why the marked improvement in the margin of error on the last diagram. You didn't change the angle through the President or the line of flight, presumed line of flight, of the bullet?

Mr. CANNING. Yes, those two angles are different. The line of sight that one obtains by using Governor Connally's back wound and President Kennedy's neck wound is slightly different from the angle which is determined by using the President's wounds alone.

Mr. SAWYER. So then by taking into account then the wounds on Governor Connally forced some kind of a caused alteration in either the line of the bullet or the posture of the President?

Mr. CANNING. Well, I want to be sure that I am responding to your question. I am not saying that the bullet's travel itself was affected. What I am saying is that our interpretation of the data tells us that if we were to determine one trajectory based on the two pieces of information, one the Governor's wound, and the President's neck wound, that that will give us one line.

The other wound, the other wound pair in the President, will give us a second line. Those two lines do not coincide simply

because of experimental error. We cannot expect to make all of the myriad of measurements such as wound location, body position and limousine position with absolute perfection. Therefore we expect slightly different answers. The two trajectories should be close enough so that they fall within a reasonable error of one another, which is what we found.

Mr. SAWYER. If we were to start at the other end then and assume that a bullet were fired at the approximate time we have determined from the sixth floor of the depository, would it have of necessity given the wounds in the President, would it of necessity, based on what you have determined as to locations somewhat, also have hit Governor Connally?

Mr. CANNING. The bullet would have had to have been substantially deflected by passing through the President in order to miss the Governor. It seems almost inevitable that the Governor would be hit with the alinements that we have found.

Mr. SAWYER. So that if we assume, as apparently is the fact, that this jacketed bullet did not hit anything solid in the way of bone in the President but only traversed the soft tissue of the neck, and presuming the approximate location of the limousine at the time and the posture as nearly as can be determined of the President at that time, that in your view then, absent a deflection of that bullet, it could not have missed Governor Connally.

Mr. CANNING. That is my view, yes.

Mr. SAWYER. I think that is all.

Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman.

I wonder whether or not you listened to the narration of Mr. Blakey with regard to the test done by the Warren Commission, a test trying to determine trajectory back in 1964.

Are you familiar with the process the Warren Commission went through?

Mr. CANNING. Yes, I have read the Warren Commission report, the summary volumes.

Mr. DODD. Could you comment? There has been a lot of criticism over the years on whether or not that was the best kind of an examination and test that could have been used at the time to determine trajectory.

Would you care to comment on the type of test that the Warren Commission used in that year to determine trajectory?

Mr. CANNING. Well, in a sense I feel that they were not testing the ability to determine a trajectory. They were testing the inconsistency of a trajectory with a hypothesis. The hypothesis was that a bullet was in fact fired from the southeast corner of the school book depository at the sixth floor, and that they were then observing the consistency of the facts with that hypothesis.

Mr. DODD. In other words, they had reached a conclusion and they were trying to determine or prove that conclusion.

Mr. CANNING. That is the way I read it, yes.

Mr. DODD. And from what I understand from listening to your testimony this morning, you assumed no particular position but

rather took the three elements that you outlined in the beginning, and then worked backwards to a possible location.

Mr. CANNING. That is correct. To the best of my ability, I put myself in the position of assuming that no gun was found and simply say where would I look?

Mr. DODD. Could I ask for exhibit, I think it is, No. 312?

It is the enhanced enlarged photograph.

Could I ask that to be placed up, as well as the—what is the proper word you used to describe the recreation?

Mr. CANNING. The calibration photograph.

Mr. DODD. Yes, the calibration photograph, the calibration photograph as well.

Mr. Canning, could I ask you to go over there near both of these exhibits?

I looked down, while you were testifying, and took a closer look at them again. I realize I am looking at them from a layman's point of view. But when I look at the President's head in the enhanced photograph on the left and then at the calibrated photograph on the right, I get—and again I am prefacing my remarks by saying I am a layman—but I see a much more severe pitch to the President's head in the enhanced photograph than I see in the calibrated photograph and I wonder if you could explain.

I detect what I see as an ear and an eye in the enhanced photograph, and maybe the images are playing games with me, and if they are, I would like you to straighten me out.

Mr. CANNING. I can assure you the images play games with you. There are many complicated details in the part of the photograph surrounding the President's head. For instance, the dark lapel of Mrs. Kennedy's blue blouse has a notch which is in close juxtaposition with the President's nose. The notch makes it look as if the President's nose extends much farther than it really does.

Mr. DODD. That is correct. That is how I saw it.

Mr. CANNING. On the other hand, when we account for where the pink and blue elements are and behind the President's face we conclude that his facial profile is well to the left of its apparent position when only a cursory examination is the basis. The interpretation of these features is certainly one of the major sources of potential error in the analysis.

Mr. DODD. In your analysis?

Mr. CANNING. Yes.

Mr. DODD. As I understood your testimony about light, you tried to recreate the sunlight on the President's head that day. That looks like an awfully large ear, in the enhanced photograph, but if that is not, obviously that is not the size of his ear. But it would appear to me that the reflection of light is giving what would appear to be a larger image than is actually the case, and yet in your other photograph over here, you don't seem to indicate the same degree of light on his ear as you do in the enhanced photograph.

Mr. CANNING. That is correct. We have a problem of in the first place spatial resolution, actually fixing the size of something.

Mr. DODD. I am sorry, I didn't hear what you said.

Mr. CANNING. We have a problem of fixing the exact size of a small object in a blurry photograph. I might point out that frame

312 is one of the better ones, but it is still difficult to work with. I am getting a little bit outside of my area of expertise but I know enough about it for this purpose I think. The image of the President's ear is very brightly overexposed where the sunshine fell on it, and so it appears larger than it would appear if it were not overexposed; that is to say the size of this ear does not look right. On the other hand, if we were to have a print of this that was of diminished intensity, then the image of the ear would look somewhat smaller. It doesn't change its position, however.

Mr. DODD. I am tempted to ask you, just on your last statement, the fact that this is the one area that could change the conclusions that you have reached, to what degree? Did you at all try to calculate by moving around the President's head in the enhanced photograph, allowing for a degree of error in your calibrated photograph, and then make a calculation as to how far off you would be?

Mr. CANNING. Essentially what I did was I took measurements of the various image features in the enhanced versions of frame 312 and compared them with those same measurements taken from the calibration photographs that were taken at adjacent angular positions. I then made an effort to find out to what degree I could have interpreted this picture wrongly. I concluded that I could be off by easily 2° , and 2° translates into quite a large change in the overall trajectory error.

Mr. DODD. Let me jump ahead. Two degrees, 2° , what does that do to the yellow line? That is the area I presume you are talking about?

Mr. CANNING. Yes, this yellow line——

Mr. DODD. Which exhibit number is that?

Mr. GOLDSMITH. That is No. F-122, Congressman.

Mr. DODD. Thank you.

What does that do to that yellow line?

Mr. CANNING. Well, it is a major part of the size of the largest error oval in the exhibit marked JFK-122. I do not try to recollect the precise number that I attributed to the interpretation of that photograph, but it was a substantial fraction of the total accuracy.

Mr. DODD. Is it possible that we would move away from the Texas School Book Depository into another building?

Mr. CANNING. All that would happen if we were to estimate a larger potential error is that this largest circle would get bigger. The position of the center doesn't tend to move, but it allows more possibilities; that is, only the size of the circle is affected. You see, it is conceivable that the bullet came down from an adjacent building, if one is to take a literal interpretation of the largest area; that is, this yellow pattern. It is conceivable that it was fired from anywhere in this circle.

Mr. DODD. Thank you.

Thank you very much.

Chairman STOKES. The time of the gentleman has expired.

I will let the doctor get back to the table. I have just one question, and it has to do with the slope.

Isn't the reason that there is a different slope because different points are being used through which you drew the trajectory line, that is, the back neck trajectory uses the JFK back wound as Point 1, and the JFK neck wound as Point 2, and under the single bullet

theory the trajectory uses the JFK neck wound as Point 1, and the Connally entry wound as Point 2? Is that understanding correct?

Mr. CANNING. That is exactly right.

Chairman STOKES. Thank you.

The gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. Thank you, Mr. Chairman.

Mr. Canning, by your calibration, how much higher is the top of President Kennedy's head than Governor Connally's head at the crucial time?

Mr. CANNING. There have been several measurements of that made. Using the Croft photograph I made one determination, but this is not my special field, and so we had a representative of the photographic panel do the job. His determination was that the President's head was 8 centimeters above the top of the Governor's head relative to the limousine, and then since the limousine is going down a slope, that increases the relative height difference slightly as well.

Mr. FITHIAN. So you are saying it would be 8 centimeters plus the tilt of the limousine determined by the slope?

Mr. CANNING. That is correct, the slope and the distance between the two men's heads.

Mr. FITHIAN. And did anyone on the panel working with the pathologists or X-rays or whatever, make any further analysis of what I would call the anatomical differences of the two men, that longer neck or larger head or whatever would throw the bullet off?

Mr. CANNING. I accounted for those differences, and the principal difference which will introduce an effect on the trajectory is well recorded in the Croft photograph. The Governor's head is quite a bit taller from the top of his shoulders to the top of his head than that of the President. At a glance this is not particularly noticeable, but the difference is substantial, and so to that extent I did account for that. I had no input from the forensic pathology panel at that point.

Mr. FITHIAN. That was your own computation?

Mr. CANNING. Yes.

Mr. FITHIAN. Let me just see if I can understand one additional thing.

Let's take the head shot wound, the length of the distance, I think you had at least one part of the measurement that was 11 centimeters?

Mr. CANNING. That is correct.

Mr. FITHIAN. If you are dealing with a segment of a line 11 centimeters long, and your estimate is one inch off at one end or the other, and you project that for 150 feet, how far off are you?

Mr. CANNING. Eleven centimeters in 1 inch? May I put it, if I were to make it 11 centimeters on 1 centimeter then I don't have to multiply by $2\frac{1}{2}$.

Mr. FITHIAN. I don't think in centimeters. Let's start with inches.

Mr. CANNING. OK. If we had then an 11-inch baseline for a measurement—

Mr. FITHIAN. You would have something less than that for the head, right?

Mr. CANNING. Yes. It is on the order of 5 inches.

Mr. FITHIAN. Five inches, OK.

Mr. CANNING. Let's take 5 inches.

Mr. FITHIAN. A 5-inch line.

Mr. CANNING. If we were to miss by 1 inch——

Mr. FITHIAN. If you were to miss one end or the other 1 inch relatively.

Mr. CANNING. I can give an approximate answer. This would yield an error in location of the gun equal to one-fifth of the distance between the President's head and the gun. If that distance were 350 feet, the error would be about 70 feet.

Mr. FITHIAN. Now let me see if I get this correctly.

A 5-inch line with 1-inch error at one end or the other——

Mr. CANNING. Yes.

Mr. FITHIAN [continuing]. Projected over 150 feet.

Mr. CANNING. Oh, 150 feet, I beg your pardon, that would be then 30 feet.

Mr. FITHIAN. It would be a 30-foot error.

Mr. CANNING. Yes.

Mr. FITHIAN. And therefore the largest error that you allowed in your circles that you say was a 13-foot radius?

Mr. CANNING. No, it was about 23 feet as I recall. I don't have the numbers.

Mr. FITHIAN. Twenty-some feet radius.

Mr. CANNING. That large circle as I recall is a 23-foot radius.

Mr. FITHIAN. Twenty-three feet radius.

Mr. CANNING. I think it is.

Mr. FITHIAN. I am informed the distance would be about 250 feet; is that correct?

Mr. GOLDSMITH. That is correct, Mr. Congressman. At the time of the head shot the distance between the limousine and the book depository building is about 250 feet. At the time of the back neck shot it was approximately 170 feet or 150 feet. You are talking now about——

Mr. FITHIAN. The head shot.

Mr. GOLDSMITH. The head shot wound.

Mr. FITHIAN. Well, it seems to me, then that your calibrations of the location of the head would have to put the inshot and the outshot wound at considerably less than an inch in error.

Mr. GOLDSMITH. That is correct.

Mr. FITHIAN. It would have to be less than a third of an inch in error, which seems to me to be highly precise, highly precise. Otherwise if it is 1 inch in error, it gives you a circle with an 80-foot radius or 85 feet or something of that nature.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Ohio, Mr. Devine.

Mr. DEVINE. Thank you, Mr. Chairman.

Mr. Canning, I am extremely impressed with your testimony, the logic, the studies you have made, particularly since you have conducted and supervised research on the flight of trajectory and stability of high speed projectiles or missiles.

I would ask one question on your margin of error that you provided on that Texas School Book Depository that is partially covered.

One has a yellow circle. One has the red circle. In all of those margins of error that you have demonstrated, the window, the key window, in the Texas Depository is always included, isn't it?

Mr. CANNING. Yes.

Mr. DEVINE. So you do not exclude that in any of your—

Mr. CANNING. No.

Mr. DEVINE. Based on—you are classified of course as an expert in your field as an engineer.

And on the trajectory studies, would you say that your studies would reveal that it is consistent that there may have been a single shot that went through the President's neck and through the body of Governor Connally?

Mr. CANNING. I am confident that that is in fact the case.

Mr. DEVINE. You are positive?

Mr. CANNING. Well, positive is a very strong word.

Mr. DEVINE. I understand. But it is totally consistent with your studies; is that correct?

Mr. CANNING. Yes, it is.

Mr. DEVINE. Thank you very much.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Tennessee, Mr. Ford.

Mr. FORD. Thank you, Mr. Chairman.

I want you to know that I am leaning toward the single bullet theory myself.

Governor Connally was moving toward the center of the jump seat in the limousine, and the witness before you indicated that he made a sharp right turn of his head, while moving. I was wondering whether or not he would have been moving his body at the same time toward the center. If not, why do you think he would have been moving toward the center and not the door of the limousine?

Mr. CANNING. I think that Mr. McCamy was saying that he was moving toward the center of the car perhaps, and that he was rotating his body rather sharply to the right and turning his head even more sharply to the right during that period. That information is consistent with the observations that I have, namely, that in Mr. Betzner's picture the Governor's shoulder is not visible at the time.

Mr. FORD. So when he made that right turn of his head, he was moving his body, which carried it to the middle of the jump seat, to the center of the car.

Mr. CANNING. Toward the center of the car, that is my impression, and it is again an impression, but take it for that, that he did not move his position on the seat but was simply rotating relative to his buttocks, moving off to his left, and rotating to his right, in order to look back around towards the President, but I don't think that he actually moved his position on the seat cushion on which he was sitting. I have no reason to believe that he did.

Mr. FORD. You are saying that there was enough speed behind that bullet, to travel 60 feet from the book depository, enter the back of President Kennedy, exit his neck, enter the back of Governor Connally, exit his chest, and cause damage to his wrist, and then lodge somewhere in his thigh. The speed of that bullet would have had that much power or force behind it.

Mr. CANNING. I am not an expert in that kind of ballistics. On the other hand, I have heard testimony from others and also read reports which indicate that that, yes, is in fact true.

Mr. FORD. No further questions, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Connecticut, Mr. McKinney.

Mr. MCKINNEY. Just one question.

You said that it would be fairly easy to do a line of trajectory from 197, frame 197.

Wouldn't that be difficult because of the violence of the movement on the part of the Governor between 190 and 197? In other words, wouldn't your single bullet theory and everything else depend on where the Governor was?

Mr. CANNING. Yes, it does depend on where he was, and we do not assume that he remained stationary. What we do is that we conclude that he made no large movements away from that general location. We did not find it possible to describe his movements more quantitative than that. I personally am certain that if he had moved enough to avoid the path of the bullet it would have been obvious in the photographs.

Mr. MCKINNEY. In other words, you have no evidence of such violent movement.

Mr. CANNING. He would have had to move practically against his wife in order to have that bullet pass him, and had he done so—he had avoided the bullet which exited the President's neck, we have a problem of finding where did that bullet go?

Mr. MCKINNEY. One last question.

In your angle or slope of bullet, I have forgotten which exhibit it was, where we show the bullet going through the President and then into the Governor in a drawing, did you positively qualify to make sure that the back of the jump seat wouldn't have gotten in the way of that slope?

Mr. CANNING. The back of the jump seat shows in the photographs, and that portion of the Governor is slightly above the back of the jump seat. It was quite close.

Mr. MCKINNEY. Thank you very much.

I have no further questions.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. It is just restating a bit or turning around the question of Mr. Devine with the observation that you confirmed made by Mr. Devine.

The lower right window on the sixth floor of the depository speaking of right as you are looking at the building, is the only aperture on the front of that entire building that is within a three margins of error, isn't that correct?

Mr. CANNING. That is correct.

Mr. SAWYER. Thank you.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman, for letting me come back.

Following up on my colleague, Mr. Sawyer's question with regard to the margin of errors in response to Mr. Fithian's questions about assuming that the entry wounds taking the farthest shot first, the

head shot, could be off by an inch or a maximum, I guess, by the enhanced photograph, 2 inches, you allowed for a margin of error in the calibrated photograph of 2 inches, was that—

Mr. CANNING. I was speaking in terms of degrees.

Mr. DODD. Two degrees you said.

Mr. CANNING. Yes.

Mr. DODD. Could we put up that photograph, the aerial photograph of Dealey Plaza?

What I would like to get at here, if I could, and I realize this is going to be very difficult under the circumstances, but if I understood your response to Mr. Fithian's question with regard to the size of the radius that would expand, if you allowed for an additional margin of error in the head wound, could you approach that for me, and I realize this is going to be—maybe in fact the photograph may not be that good for our purposes.

What I am trying to get at, I thought we were going to see the face of the School Book Depository and we really don't. I am trying to see if it would expand further across the street, for instance, to that building adjacent to the Texas School Book Depository, or kitty corner to it, to that other building.

Is that the kind of margin of error that would be expanded to include some of those additional possible sights, or am I taking it much further than it should go?

Mr. CANNING. I think the first part of your hypothetical extension is quite reasonable, because the eastern sector of the error circle extends beyond the corner of the School Book Depository and therefore includes a little bit of the Dal-Tex Building—it would then clearly be the candidate, and there would be an area on the western part of the Dal-Tex Building which would then have to be included.

Do you think you would also possibly include that newer looking building?

Mr. CANNING. This is the Records Building.

Mr. DODD. Does that throw it off too much, laterally?

Mr. CANNING. That would really call for a very, very large ellipse, an error circle, to include it. It is conceivable, but I personally don't think that that is at all likely.

Mr. DODD. Mr. Chairman, would it be appropriate for me at this time to impose upon our witness, not obviously today, but to ask him if we couldn't get a photograph that would include the Dal-Tex Building, and draw an additional radius line that would allow for a margin of error of 2°, in the enhanced photograph?

I would just like to see specifically what that would include in that building or other possible sites. Is that appropriate?

Mr. CANNING. Two degrees yields roughly a 3-percent error, at a range of 250 feet; this is about 8 feet; another 2° would enlarge the ellipse only about 8 feet radially. It is not a major increase.

In describing these error circles, I think it is honest to say that I have done my very best to quote the highest accuracy—that is to say, the smallest circles—that I think at all justifiable. The natural conservatism of people who have worked in forensic pathology and ballistics, their natural conservatism, which I do not share, would yield considerably larger ellipses than I have shown. Allowing for

larger errors would not change the positions of the ellipses. All it would do is make them larger.

Mr. DODD. Thank you very much.

Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

Mr. FITHIAN. Mr. Chairman.

Chairman STOKES. Does the gentleman seek recognition?

Mr. FITHIAN. I thought I was trying to help you with your diet, Mr. Chairman, keeping you away from lunch.

Chairman STOKES. Mr. Fithian.

Mr. FITHIAN. Mr. Canning, were you able to project the path of the bullet or the major fragments of the bullet that struck the President's head, that is, on into where they would be imbedded or wherever they were actually located in the car?

Mr. CANNING. I made no attempt to do anything exact along those lines. I noted qualitatively that damage to the windshield of the car appeared to be in reasonable directional alinement but did not appear to be particularly in good slope alinement. But I did no quantitative work in that line.

Mr. FITHIAN. And the other part of that similar question is, someone, somewhere along the line before this committee, has made the statement that when the bullet exited the President's throat, it was rising. I am not sure who it was. But I take it from your testimony that you believe the bullet entered the President's back when he was tilted forward 18° , or something like that, from the perpendicular?

Mr. CANNING. The 18° figure was roughly the maximum that I thought was justified by the photograph of Croft.

Mr. FITHIAN. And given that zero to 18° tilt, and the path of the bullet unobstructed by any bone, you have no problem then putting it in Governor Connally's back at the place where it was located?

Mr. CANNING. The zero degree or slightly upward that you refer to is in relationship to the body in the autopsy position. But when we start making the adjustments in the autopsy, in the body confirmation, the hunching of the shoulders, the inclination, bringing the chin down, all of those tend to yield a dropping projectile as opposed to one that is traveling horizontal. My estimates of the inclination of his torso, "hunching" if you will, extended from about 11° to 18° . What we would call hunching—there is an additional effect resulting from the original observation of wound positions with the President's head "upturned."

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

Counsel for the committee, Mr. Goldsmith.

Mr. GOLDSMITH. Yes, Mr. Chairman. I have a few questions to ask for purposes of clarification.

First, may I ask Mrs. Downey to remove the exhibit showing the aerial view?

Mr. Canning, a question has arisen concerning the three exhibits that have been studied today that show the direction of the bullet. This is one of those three exhibits.

Drawing your attention to this exhibit, the lower right-hand section of it shows the President, and it has a line going from the President outward. Then moving up a bit toward the center of the

exhibit, there is the limousine itself and a line going from the limousine to the book depository.

What is the relationship between those two lines? Should they be parallel or is the appropriate thing to focus on the relationship between the line from the President in relationship to the limousine?

Mr. CANNING. The latter is correct. In order to fit in the largest reasonable illustration in the inset in at least one of the drawings, we allowed ourselves to rotate the position of the limousine relative to the position of the limousine in the street.

Mr. GOLDSMITH. So in those three exhibits I take it then there is no need for those two lines to be parallel to each other.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. Fine. Now one other question about the matter of the margin of error.

Drawing your attention to JFK F-122, that shows the three circles or ellipses drawn around different portions of the book depository.

When you determined the margin of error specifically now for the head shot trajectory as is depicted there, it is the yellow ellipse, did you take into consideration the possibility that you would have been off in determining the orientation of the President's head by as much as 2°?

Mr. CANNING. That was included in the analysis.

Mr. GOLDSMITH. So if that is correct, I take it that that yellow ellipse includes that possibility.

Mr. CANNING. That is correct.

Mr. GOLDSMITH. And it would not follow then that the ellipse could be moved, for example, to the right.

Mr. CANNING. No. If the error were estimated to be larger, it could move the right-hand side of the ellipse and the left-hand side of the ellipse outward relative to the center.

Mr. GOLDSMITH. Fine.

So in response to the questions that were posed to you by Congressman Dodd, I take it then when you said that the ellipse would move, you were talking about if there were additional error beyond the margin of error that you have estimated.

Mr. CANNING. It simply means the ellipse gets bigger.

Mr. GOLDSMITH. I understand, but please respond to the question I am addressing to you.

Mr. CANNING. I am sorry.

Mr. GOLDSMITH. Congressman Dodd asked you whether the ellipse would move to the right, for example, if the orientation of the head was—if your estimation of the orientation of the head was off by 2°. I believe your answer was, yes, it would move to the right. My question to you is, when you determined that margin of error to begin with, did you take into consideration the possibility that your estimation of the orientation of the head was off by as much as 2°?

Mr. CANNING. Yes, I did.

Mr. GOLDSMITH. So there would not be a movement then, would there?

Mr. CANNING. There would be no movement of the ellipse, that is correct.

Mr. GOLDSMITH. The ellipse as I see it would move if your estimation of the margin of error was incorrect.

Mr. CANNING. Well, the ellipse—if my estimate—I am not sure I follow you.

Mr. GOLDSMITH. In other words, the response to Congressman Dodd, if your estimate of the margin of error was incorrect, was greater than you estimated it to be, then the ellipse would move.

Mr. CANNING. The ellipse gets bigger.

Mr. GOLDSMITH. Gets bigger.

Mr. CANNING. Yes.

Mr. GOLDSMITH. And if your estimation of the margin of error is correct, it would stay in exactly the same place.

Mr. CANNING. That is correct.

Mr. DODD. Would counsel yield on just that one point, since you are following that line of questioning, would you also take into consideration the questions by Mr. Fithian?

You relied pretty much on the exact location of the entry wounds as reported by the pathologist.

Mr. CANNING. That is correct.

Mr. DODD. Did you allow for any margin of error there?

Mr. CANNING. There was a small allowance for that. It was a couple of millimeters. That was quite well determined.

Mr. DODD. Did counsel want to pursue that same line of questioning with regard to that?

Mr. GOLDSMITH. Mr. Canning, I am not attempting to suggest any particular testimony on your part. I am only trying to clarify here.

Mr. CANNING. Yes.

Mr. GOLDSMITH. That ellipse as it is presently drawn, does that reflect the margin of error as you determined it to be?

Mr. CANNING. That is my estimate of the margin of error.

Mr. GOLDSMITH. No further questions.

Thank you.

Mr. FITHIAN. If the gentleman would yield, the reason the small blue circle is so much smaller is primarily because of the additional length of the line between the exit wound of the President and the entrance wound in Connally; is that correct?

Mr. CANNING. That is correct.

Chairman STOKES. The time of the gentleman has expired.

Professor Blakey.

Mr. BLAKEY. Mr. Chairman, it may be useful for those who have only tuned in today to recognize that additional evidence will have to be considered in evaluating the possibility raised by Mr. Fithian and Mr. Dodd that the gunshots could have come from another building; that evidence already in the record might include the following: the neutron activation analysis that indicated that the pieces of lead found in the car came from two and only two bullets; the ballistics evidence that indicated that both of those bullets could be traced back to the gun allegedly found in the sixth floor of the depository. Consequently, it ought to be noted that there is no additional evidence in this record that could be correlated with the hypothesis of a shot hitting the President not coming from the depository.

Chairman STOKES. Mr. Canning, at the conclusion of the witness' testimony before our committee, that witness is entitled to 5 min-

utes under the rules of the House to explain his testimony or make any statement he cares to make relative to his testimony before this committee.

I extend to you such time, if you desire it, at this time.

Mr. CANNING. Thank you.

I would like to make just one point that has occurred to me that may not have been amply clear, and, that is, in the case of the single bullet theory, we established with high reliability and precision, I believe, the rightmost position which Governor Connally could have been sitting in at the time that he was wounded. We did not establish how far to the left he could, with comparable of quantitative certainty. And with that in mind, there may be some small change that might come about in where the error circle for his case would lie if we were able to determine, for instance, that he was several centimeters to the left of where I placed him in that drawing, and what that would do is, that it would move the left-hand margin of the smallest ellipse, of that black ellipse, it would move it somewhat to the left, as we see it. It would move it to the west. But that change is not in my view an important change in the overall result.

Chairman STOKES. Thank you very much, Mr. Canning.

I certainly want to thank you for the testimony you have given here today, and I think I can say on behalf of the entire committee, you have certainly given some very impressive testimony, and we appreciate your appearance.

Thank you very much, and you are excused.

Mr. CANNING. Thank you.

Chairman STOKES. There are no further witnesses to come before the committee today. Therefore, at this time the Chair would adjourn these hearings until 9 a.m. tomorrow morning.

[Whereupon, at 12:40 p.m., the select committee was adjourned, to reconvene at 9 a.m., Wednesday, September 13, 1978.]

INVESTIGATION OF THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

WEDNESDAY, SEPTEMBER 13, 1978

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON ASSASSINATIONS,
Washington, D.C.

The select committee met, pursuant to adjournment, at 9:15 a.m., in room 345, Cannon House Office Building, Hon. Louis Stokes (chairman of the select committee) presiding.

Present: Representatives Stokes, Devine, Preyer, Fauntroy, Thone, Sawyer, Ford, Fithian, and Edgar.

Staff present: G. Robert Blakey, chief counsel and staff director; James McDonald, staff counsel, and Elizabeth L. Berning, chief clerk.

Chairman STOKES. The quorum being present, the committee will come to order.

At the outset of today's hearing, I would like to make a couple of observations.

During the course of our hearings, on two occasions we have had individuals who have attempted to disrupt the proceedings, and on those occasions, it has been necessary for the Chair to order those persons to be removed from the room.

The Chair would like to make it clear that these are congressional hearings. First, they are to be conducted with a certain amount of dignity, and accordingly the Chair will not tolerate any disruption whatsoever of these hearings. We hope that all individuals observe the practices of the House and not cause this type of action to have to be taken during the course of these hearings.

Second, this morning's witness, at the time the witness is brought into the room, I will ask that all individuals remain seated until after the witness has been brought into the room and seated at the witness table, and then again when the witness leaves the room, we will ask that all persons remain in their seats until the witness has been escorted from the room.

Mr. Blakey.

NARRATION BY G. ROBERT BLAKEY, CHIEF COUNSEL

Mr. BLAKEY. Thank you, Mr. Chairman.

Marina Prusakova was born on July 17, 1941 in the Russian village of Molotovsk near the White Sea. She was raised, for the most part, by her grandmother.

In August 1959, Marina moved to the city of Minsk, and in March 1961, at a dance, she met a young American who called himself Alik. Six weeks later, Marina and Lee Harvey Oswald were

married. It is fair, therefore, to presume that in the succeeding years Marina was the closest person to Lee Harvey Oswald.

The Oswalds remained in Russia until June 1962, at which time they moved to the United States. They went to Dallas, the home of Lee's mother and a brother. In the spring of 1963, they moved to New Orleans, then back to Dallas in September.

After Lee Harvey Oswald was arrested in connection with the assassination of President Kennedy and then shot to death by Jack Ruby, Mrs. Oswald testified a total of four times before the Warren Commission. All of her testimony was in closed session.

In 1965, Marina Oswald married Kenneth Porter.

In October of 1977, Priscilla Johnson McMillan published her "Marina and Lee," a book in which Marina cooperated so as "to speak, through her more capable words, the things the people should know."

There will be four general areas of questioning of Mrs. Porter this morning: First, Russia; second, Dallas from June 1962 through April 1963; third, New Orleans from April 1963 to September 1963; fourth, Dallas from September 1963 to November 1963.

It would be appropriate now, Mr. Chairman, to call Mrs. Porter. Chairman STOKES. The committee calls Mrs. Porter.

Mrs. Porter, would you please stand and raise your right hand and be sworn?

Do you solemnly swear the testimony you will give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

Mrs. PORTER. I do.

Chairman STOKES. Thank you.

You may be seated.

The Chair recognizes counsel for the committee, Mr. James McDonald.

Mr. McDONALD. Thank you, Mr. Chairman.

For the record, would you please state your full name?

TESTIMONY OF MARINA OSWALD PORTER

Mrs. PORTER. Marina Nikolaevna Porter.

Mr. McDONALD. And were you one time known as Marina Oswald?

Mrs. PORTER. Yes, sir.

Mr. McDONALD. Mrs. Porter, are you accompanied today by an attorney?

Mrs. PORTER. Yes.

Mr. McDONALD. And would you please have your attorney identify himself for the record?

Mr. HAMILTON. My name is James Hamilton, and I practice law in the District of Columbia.

Mr. McDONALD. Thank you.

Mrs. Porter, when and where were you born?

Mrs. PORTER. I was born in Soviet Union in city of Molotovsk on July 17, 1941.

Mr. McDONALD. And with whom did you live during your early childhood years?

Mrs. PORTER. With my mother, stepfather, and my grandmother

Mr. McDONALD. Mrs. Porter, could you move the microphone a little closer to you ?

Mrs. PORTER. OK.

Mr. McDONALD. Thank you.

And where were these early years spent, what city?

Mrs. PORTER. Archangel.

Mr. McDONALD. When did you move to Minsk?

Mrs. PORTER. When I was 19 years old, I believe.

Mr. McDONALD. And why did you go there?

Mrs. PORTER. I went to live with my aunt and uncle in order to work in the city.

Mr. McDONALD. And what were their names, your aunt and uncle?

Mrs. PORTER. It was Ilya and Valentina Prusakova.

Mr. McDONALD. And your uncle, was he known to you as Uncle Anya?

Mrs. PORTER. No, Uncle Ilya.

Mr. McDONALD. And where was he employed?

Mrs. PORTER. He was working for MVD in the city of Minsk.

Mr. McDONALD. And what is that, the MVD?

Mrs. PORTER. It is the Ministry of Internal Affairs.

Mr. McDONALD. And what did he do at the MVD?

Mrs. PORTER. I do not know what he exactly did, except I know he has a profession as an engineer.

Mr. McDONALD. Did he ever discuss his job with you?

Mrs. PORTER. No.

Mr. McDONALD. Did he ever discuss his job at home?

Mrs. PORTER. No.

Mr. McDONALD. And he was stationed in Minsk or worked in Minsk?

Mrs. PORTER. Yes.

Mr. McDONALD. Did you ever study English in the Soviet Union?

Mrs. PORTER. Me? No.

Mr. McDONALD. You never studied in school?

Mrs. PORTER. No.

Mr. McDONALD. Mrs. Porter, when did you first meet Lee Harvey Oswald?

Mrs. PORTER. I do not recall the exact month, and the day of the month, but it was in 1961.

Mr. McDONALD. Do you recall whether it was in March of 1961?

Mrs. PORTER. February or March.

Mr. McDONALD. And how were you introduced to him?

Mrs. PORTER. By some mutual friends, a group of students that I know, I knew.

Mr. McDONALD. Can you recall who introduced you?

Mrs. PORTER. No.

Mr. McDONALD. And where were you when this introduction took place?

Mrs. PORTER. It was at the city dance hall in Minsk.

Mr. McDONALD. Can you describe for us, as best you can, your collection of when you did meet him, what you were doing and who brought you together?

Mrs. PORTER. Well, I was invited by a friend of mine, a medical student who attended, medical students' dance, ball, and when I

came there, it was a group of students, and one of them was Lee, and some mutual friend introduced me to him.

Mr. McDONALD. Can you recall who that mutual friend was?

Mrs. PORTER. No, I don't.

Mr. McDONALD. Can you recall what you talked about at this first meeting?

Mrs. PORTER. Just typical young people everyday talk, routine talk, about the weather. I do not really recall what it was about.

Mr. McDONALD. Do you recall how long this initial meeting lasted?

Mrs. PORTER. About 2 or 3 hours.

Mr. McDONALD. In other words, you continued to talk with Lee Oswald for 2 to 3 hours?

Mrs. PORTER. No, I didn't. When he asked to dance, we just talked very little.

Mr. McDONALD. Did he tell you he was an American?

Mrs. PORTER. No, not at that—not during the dancing, no.

Mr. McDONALD. At this time you were speaking in Russian together?

Mrs. PORTER. Yes. He spoke with accent so I assumed he was maybe from another state, which is customary in Russia. People from other states do speak with accents because they do not speak Russian. They speak different languages.

Mr. McDONALD. So when you say another state, you mean another Russian state?

Mrs. PORTER. Yes, like Estonia, Lithuania, something like that.

Mr. McDONALD. Did you suspect at all that he was an American?

Mrs. PORTER. No, not at all.

Mr. McDONALD. Did he tell you where he worked?

Mrs. PORTER. Not at that moment.

Mr. McDONALD. Can you recall the first time when you and Lee Oswald had a discussion when he told you about himself? In other words, when was the first time you had a discussion with Oswald when he told you where he was from, told you something about himself?

Mrs. PORTER. Well, after the dance, we had been invited for tea or whatever, for a little gathering at somebody's house, one of the friends, and a majority of the group went there, and then I found out that Lee was from America, and of course it was lots of curious people asking questions about his country, and I was one of them.

Mr. McDONALD. Did he say why he left the United States? Did he tell you or anyone in your presence?

Mrs. PORTER. I do not recall that.

Mr. McDONALD. Do you recall asking him why he was in Russia?

Mrs. PORTER. I do not remember if I asked him at that particular evening.

Mr. McDONALD. Did he tell you where in the United States he was from?

Mrs. PORTER. No.

Mr. McDONALD. Can you recall when he first expressed any political views to you?

Mrs. PORTER. Not really. The politics really weren't discussed in the sense comparing two countries, which one is better.

Mr. McDONALD. Did he ever tell you he was a Communist?

Mrs. PORTER. No.

Mr. McDONALD. Or a Marxist?

Mrs. PORTER. No.

Mr. McDONALD. Or a Trotskyite?

Mrs. PORTER. No.

Mr. McDONALD. Before or after you got married, can you recall what political views he was expressing to you then?

Mrs. PORTER. Well, the political views never have been emphasized in the relationship at all.

Mr. McDONALD. After you got married, and you got married at the end of April in 1962?

Mrs. PORTER. Yes.

Mr. McDONALD. Again I will ask you when did he first tell you the reason why he left the United States and came to Russia?

Mrs. PORTER. Well, I cannot pinpoint the exact date, but if I recall, way back in one conversation or all together, it came clear—pardon me, I lost the question.

Mr. McDONALD. When do you recall he first told you why he left the United States to come to Russia?

Mrs. PORTER. So anyway he said that being young, he just wanted to see—I mean he read something about Soviet Union and he wanted to see for himself what life looked like in Soviet Union.

Mr. McDONALD. Do you recall him expressing dissatisfaction with the United States?

Mrs. PORTER. No, I do not recall, not at that moment, I mean not at the beginning of the relationship, if he was saying something for or against the United States.

Mr. McDONALD. You are saying at the beginning of your relationship you don't recall him saying anything for or against the United States?

Mrs. PORTER. No.

Mr. McDONALD. When do you recall him first expressing opinions against the United States?

Mrs. PORTER. A few months after the marriage when I found out that he is wishing to return to his homeland. Then he started complaining about the bad weather in Russia and how eager he will be to go back.

Mr. McDONALD. Can you recall Oswald expressing at this time, soon after your marriage but prior to the return, prior to your return to the United States, do you recall him expressing any views about the United States and its political system, either pro or con, for or against—

Mrs. PORTER. No.

Mr. McDONALD [continuing]. And specifically regarding John Kennedy?

Mrs. PORTER. What I learned about John Kennedy it was only through Lee practically, and he always spoke very complimentary about the President. He was very happy when John Kennedy was elected.

Mr. McDONALD. And you are saying while you were still in the Soviet Union he was very complimentary about John Kennedy?

Mrs. PORTER. Yes, it seemed like he was talking about how young and attractive the President of the United States is.

Mr. McDONALD. Can you recall during this time when he ever expressed any contrary views about Kennedy?

Mrs. PORTER. Never.

Mr. McDONALD. Did you ever ask him directly why did you come to the U.S.S.R.?

Mrs. PORTER. I probably did.

Mr. McDONALD. Can you recall what his answer was?

Mrs. PORTER. Well, he said that he was always curious about Soviet Union, and he bought tourist visa. I asked him how did he got in the United States, I mean to Soviet Union, I am sorry. He said that he bought visa or whatever you call it, asked for permit to enter the country through Finland as a tourist, and then he asked to stay.

Mr. McDONALD. Did he ever talk about defecting from the United States to the Soviet Union?

Mrs. PORTER. What do you mean by that?

Mr. McDONALD. Defect, in other words, renouncing or at least ostensibly renouncing the U.S. citizenship to come to the Soviet Union.

Mrs. PORTER. Well, during the marriage I found out about that, that he did give up his American citizenship, and was afraid it will be very difficult to come back for that reason, or they would not permit him to come back.

Mr. McDONALD. And how did you find out about this?

Mrs. PORTER. I do believe that he told me.

Mr. McDONALD. Before you married him, were you aware of this defection situation?

Mrs. PORTER. I don't remember if I knew that. Oh, you mean before we were married?

Mr. McDONALD. Yes.

Mrs. PORTER. No.

Mr. McDONALD. Did Lee Oswald ever discuss with you the various trips he made to the American Embassy when he was trying to defect? This would have been before you even met. But did he ever tell you about the different times he went to the U.S. Embassy in Moscow?

Mrs. PORTER. No, he did not.

Mr. McDONALD. What was your first impression of Lee Oswald when you met him?

Mrs. PORTER. He was polite, neatly dressed, very courteous, well mannered, and he was quite attractive.

Mr. McDONALD. Did you notice whether he was in the company of other individuals, any friends, the night of the dance?

Mrs. PORTER. Yes, he was.

Mr. McDONALD. In the book "Marina and Lee" by Priscilla Johnson, it says that you first met him, met Lee, on March 17, 1961, and on March 25th, a few days later, you received a call to visit him at the hospital because he was sick.

Would you comment on that?

Why did you go? You had only met him at a dance.

Mrs. PORTER. Well, my aunt took the message, and she said there is somebody with the accent calling and they left a message for you to come over. So, of course, I had sympathy for person being in the hospital, why not pay a visit. It was just a courteous thing to do

Mr. McDONALD. Even though he was only a casual acquaintance at that time?

Mrs. PORTER. Yes. I did like him.

Mr. McDONALD. Pardon?

Mrs. PORTER. I did like him, so——

Mr. McDONALD. And what did you talk about on this occasion in the hospital and in the hall?

Mrs. PORTER. Well, what do you talk about in a hospital?

Mr. McDONALD. Well, can you recall?

Mrs. PORTER. Just asked how you feel, and what has been done for him over there, and if he has plenty of food to eat and what-ever.

Mr. McDONALD. You knew him for briefly 6 weeks, and you got married on April 30, 1961.

Mrs. PORTER. Yes.

Mr. McDONALD. Would you consider that a—well, wasn't that a rather hasty move, hasty decision, after 6 weeks of knowing an individual?

Mrs. PORTER. Not when you are age that I was, you don't think it is.

Mr. McDONALD. At that time did you know anything about him, about his background?

Mrs. PORTER. Not very much, except that he is American.

Mr. McDONALD. Did you know whether he had a family in the United States?

Mrs. PORTER. I do not recall when I found out that he have brother and mother.

Mr. McDONALD. At that time when you married him, did you know whether his mother was alive?

Mrs. PORTER. No.

Mr. McDONALD. Again referring to the book "Marina and Lee," in that book it is stated that you didn't know that Oswald had been in contact with the American Embassy since February of 1961, 2 months, 2½ months prior to your getting married, when he expressed a desire to return to the United States, starting back in February 1961.

Is that true, that you did not have any idea that he had been in touch with the American Embassy?

Mrs. PORTER. No, that was the condition of me accepting his proposal, because I asked him before marriage if you ever be able or will come back to United States, and he said no, so I assumed that he will be living in Soviet Union all the time.

Mr. McDONALD. At that time what was your attitude toward the United States?

Mrs. PORTER. Well, I did not know that much about United States, but I was curious to find out about. I did not have any hostility toward United States.

Mr. McDONALD. When was the first time you learned that Oswald wanted to return to the United States?

Mrs. PORTER. Some time after we were married, a few months later maybe.

Mr. McDONALD. You say a few months?

Mrs. PORTER. Yes.

Mr. McDONALD. Can you recall how you learned?

Mrs. PORTER. No, I don't. Please do not forget, it was so many years ago.

Mr. McDONALD. I understand. But can you try to remember? That would be, you are a Russian citizen, and the very first time that you learned that your husband wants to leave and take you to the United States, that would be a significant event. I would assume it might have even been a shocking event to you——

Mrs. PORTER. Yes.

Mr. McDONALD [continuing]. To think that you might leave your homeland.

Mrs. PORTER. Yes, it was. It wasn't very easy decision for me to make. What should I do? Should I follow him or should I stay at home?

Mr. McDONALD. But the question was, as best you can recall, how you learned that he, that Oswald, wanted to go back to the United States?

Mrs. PORTER. Well, as far as I remember right now, I think he just asked me one day or one evening what would I think if he come back to United States? Would I go with him? Of course I told him wherever he go, I should too, and I will back him up.

Mr. McDONALD. And right around the time when you first learned that he wanted to go back to the United States, can you recall whether there was any change in his attitude toward the United States politically?

Mrs. PORTER. I do not remember. I don't think it was, because he just wanted to go back home, and that was the main concern of his.

Mr. McDONALD. During your time in Russia together, what were Lee Oswald's political views?

Mrs. PORTER. To tell you the truth, I do not know, because I do not ever—I wasn't interested in politics. I did not discuss this as a fact. I maybe overheard conversation between him and somebody else, an article in newspaper, what they think about certain events at this time.

Mr. McDONALD. Did he discuss politics with you?

Mrs. PORTER. Not much, but every time something aroused, like somebody maybe will be unfair, make an unfair statement toward the United States, he will defend United States.

Mr. McDONALD. Where did Oswald work?

Mrs. PORTER. He worked at the radio factory nearby our apartment.

Mr. McDONALD. And what did he do there?

Mrs. PORTER. I do believe maybe he was some kind of mechanic. really don't know what kind of job exactly he did.

Mr. McDONALD. Did he ever discuss his job?

Mrs. PORTER. Only thing he said that he did not like it very much, it was manual labor.

Mr. McDONALD. It was manual labor?

Mrs. PORTER. Yes.

Mr. McDONALD. Did he come home in the evening with dirty hands, dirty clothes?

Mrs. PORTER. The first time he did after he came home he went and took a shower right away, so—not really dirty, no.

Mr. McDONALD. On subsequent nights I mean, do you recall whether he would come home—you said he did manual labor. Were

his hands rough, dirt under the fingernails and generally did it look like he was doing that kind of work?

Mrs. PORTER. Well, not really.

Mr. McDONALD. How about his clothes? Did he have a special set of work clothes?

Mrs. PORTER. I don't remember. I think he did, but I would not recall exactly.

Mr. McDONALD. Who were his friends during this time in Minsk?

Mrs. PORTER. Lee did not have very many friends. I do recall one young man working with him. His name was Pavel Golovachev, and he was around our house quite a lot and they spoke English. So for this young gentleman it was a good practice.

Mr. McDONALD. Was this individual Pavel Golovachev?

Mrs. PORTER. Yes.

Mr. McDONALD. Would you consider him Lee's closest friend?

Mrs. PORTER. I think so.

Mr. McDONALD. When was the first time you met him?

Mrs. PORTER. I do not remember if I met him before we were married or shortly after he came by the house.

Mr. McDONALD. Did he work with Lee at the radio factory?

Mrs. PORTER. I even doubt that—he was invited to the wedding as a friend of Lee.

Mr. McDONALD. Do you recall when you first met him?

Mrs. PORTER. Pardon me?

Mr. McDONALD. When did you first meet him, Pavel Golovachev?

Mrs. PORTER. Like I said earlier, I don't remember. Maybe it was when he was invited to the wedding on April 30.

Mr. McDONALD. That was the the first time you met him?

Mrs. PORTER. I assume by now.

Mr. McDONALD. Did you get to know him well?

Mrs. PORTER. Fairly well.

Mr. McDONALD. Did he come over to your apartment?

Mrs. PORTER. Yes, he was a very nice boy.

Mr. McDONALD. Do you know where he lived? Did he live in the general vicinity of your apartment?

Mrs. PORTER. I don't think so. I think he lived somewhere in town but I don't know where. Not very far away.

Mr. McDONALD. Do you know whether Oswald and Mr. Golovachev ever talked about politics together?

Mrs. PORTER. I really don't know because they spoke in English.

Mr. McDONALD. They spoke in English?

Mrs. PORTER. Yes.

Mr. McDONALD. And why did they do that?

Mrs. PORTER. Because Pavel Golovachev was studying English language and not very many people you can speak the language then, so he said it was a good practice for him being around Lee.

Mr. McDONALD. Do you think this was one of the reasons that he befriended Oswald, to perfect his language ability?

Mrs. PORTER. It could be, and he was interested about United States I feel sure and talked about, compared the life.

Mr. McDONALD. Do you know how they met, how these two individuals met?

Mrs. PORTER. No, I don't.

Mr. McDONALD. Have you ever heard from this individual since you left Minsk, Mr. Golovachev?

Mrs. PORTER. I do believe when we moved back to United States, we did receive some letters from Soviet Union, but I do not remember exactly from whom. That is possible.

Mr. McDONALD. Generally what kind of person was he, Mr. Golovachev?

Mrs. PORTER. He was quite bright and honest and fun person.

Mr. McDONALD. Thank you, Mrs. Porter.

Mr. Chairman, I am finished with this line of questioning for this phase.

Chairman STOKES. Thank you, Counsel.

The Chair recognizes the gentleman from North Carolina, Judge Preyer, for such time as he may consume.

Mr. PREYER. Thank you, Mr. Chairman.

Mrs. Porter, your English now seems to be very good.

Mrs. PORTER. Thank you.

Mr. PREYER. But if you have any trouble in understanding me or understanding the question, please ask and I shall try to put it in another form which you can understand better.

I would like to continue with a few questions in the period of your early life in Russia with Lee Harvey Oswald.

I might say for the record at this time that Mrs. Porter has given several depositions to the committee, and they will be made a part of the final report, and I think that may explain why we will not ask every conceivable question about this period in your life that we might think of.

When you first married Lee Harvey Oswald, he had his own apartment.

Did you consider that unusual, that a single person in the Soviet Union, who had a menial job, would have his own apartment?

Mrs. PORTER. Yes, it is kind of unusual, but foreigners in Soviet Union usually are treated a little bit better than their own citizens.

Mr. PREYER. In other words, it would have been unusual for a Soviet citizen in his situation to have a single apartment.

Mrs. PORTER. Yes, but he had more privileges as a foreigner.

Mr. PREYER. Were the type of privileges he had and the type of apartment he had like those that other foreigners would have had?

Mrs. PORTER. I do not know because I cannot compare to other foreigners.

Mr. PREYER. Was it the practice that foreigners had better housing accommodations—

Mrs. PORTER. That is what I heard.

Mr. PREYER [continuing]. Than Soviet citizens?

When you were living in the apartment, did Lee ever have visitors whose identity was unknown to you, that is, did anyone visit you, apart from your normal friends, someone who was a stranger to you?

Mrs. PORTER. No.

Mr. PREYER. Was Lee secretive during this time?

Mrs. PORTER. I think so. For example, he would be writing something on a piece of paper and it will be in English, and if I ask him what it was, he would not talk about.

Mr. PREYER. Was he devious? By that I mean, would he say, for example, that he was going one place and you learned later that he had gone to another place?

Mrs. PORTER. I do not understand the question what "devious" means. I don't know.

Mr. PREYER. Perhaps the word "deceptive."

Was he deceptive to you? Did he say to you he would do one thing and you later learned he did another thing?

Mrs. PORTER. Not that I know of, not at that particular period of my life.

Mr. PREYER. At this period of your life, did he ever act violently in front of you?

Mrs. PORTER. No.

Mr. PREYER. Did he ever mention to you that he had contact with the KGB, the Soviet intelligence agency?

Mrs. PORTER. No.

Mr. PREYER. In your deposition, one of the depositions you gave the committee, I believe you stated that you both assumed that the KGB was observing you.

What is the basis for that conclusion?

Mrs. PORTER. Well, from Russian newspaper you assume that they don't print exactly what is going on in United States, and I can act like they maybe mistrust them, so it wasn't surprising for them to keep eye on a foreigner.

Mr. PREYER. Have you personally ever had any contact with the KGB or the MVD?

Mrs. PORTER. I lived in apartment with lots of people. The neighbors were working for the same, how you call it, same not organization, but they worked for MVD. They were different professions, doctors and whatever, and of course I know them as neighbors.

Mr. PREYER. But as far as you know, you had no contact with the KGB or the MVD on any sort of official business basis.

Mrs. PORTER. Did you say "official"?

Would you please repeat your question? Did you say "official"?

Mr. PREYER. As I understood your answer, you stated that some of your neighbors may have been connected with the KGB or the MVD.

Mrs. PORTER. I know they work for it.

Mr. PREYER. Worked for them, but that your contact with them was as neighbors?

Mrs. PORTER. Yes, and sometime in my life I had to go over there and talk to the men at MVD when I was applying for a visa to travel, to leave Soviet Union.

Mr. PREYER. Did you and Lee think that your apartment was bugged?

Mrs. PORTER. Yes, we did.

Mr. PREYER. Why did you expect the bug in your apartment?

Mrs. PORTER. Well, because like I do not even know if bug will steal any electricity, but our electric needle would be running when I turn all electrical appliances off. It would still be moving. So I did not know what the reason for that was, except we assumed we had been watched.

Another assumption is that this is quite customary in Soviet Union to keep eye on somebody.

Mr. PREYER. So that you say it was quite customary to buy foreigners in this situation.

Mrs. PORTER. I am not really making that exact statement. I might have heard gossip about it, and I knew that they do watch foreigners.

Mr. PREYER. Did Lee ever tell you why he thought he was allowed to stay in the Soviet Union?

Mrs. PORTER. I do not recall if he said why. I do not recall right now.

Mr. PREYER. Why did you think he was allowed to stay there since he was uneducated and was not a scientist or not in the category of foreigners who would normally be welcomed to the Soviet Union?

Mrs. PORTER. When I found out later and during the marriage that he gave up his American citizenship and asked for—I mean anyone ask Russia for political asylum, so that was my thinking at the time for the reason.

Mr. PREYER. Did Lee have a rifle, a gun, a rifle, while he was living in Minsk?

Mrs. PORTER. Yes, he did.

Mr. PREYER. Did he hunt with it? If so, how often did he go hunting?

Mrs. PORTER. Not during our marriage he didn't, but he did belong to hunting club, and he said that he did previous to our marriage.

Mr. PREYER. And did I understand you to say that after your marriage, he did not go hunting?

Mrs. PORTER. Not that I know of or remember right now. I don't recall that at all.

Mr. PREYER. Did he often take the rifle out and clean it or look at it or examine it?

Mrs. PORTER. Occasionally he did that.

Mr. PREYER. How were you employed when you first met Lee?

Mrs. PORTER. I did not hear you, sir.

Mr. PREYER. What was your work? How were you employed when you first met Lee Oswald?

Mrs. PORTER. I was a pharmacist and working at the drugstore nearby hospital.

Mr. PREYER. You mentioned earlier that after you were married you and Lee thought the apartment was bugged.

Did you think that your mail or Lee's mail was being opened?

Mrs. PORTER. We assumed that it was. Letters are censored that come from foreign countries.

Mr. PREYER. Did Lee ever say anything about his mail being tampered with, that is, that an envelope had been opened and resealed, for example?

Mrs. PORTER. I believe he did.

Mr. PREYER. Can you recall anything about that occasion?

Mrs. PORTER. No, I don't. But since you mentioned it, it does ring a bell that maybe it did happen on one or a few occasions.

Mr. PREYER. Did you feel that you and Lee were being watched, that is, did you see any strange men outside of your apartment who appeared to be loitering near your apartment?

Mrs. PORTER. I don't remember right now.

- Mr. PREYER. Were you a member of the Komsomol?
- Do I pronounce that right, the Communist youth movement?
- Mrs. PORTER. Yes, I was.
- Mr. PREYER. How long were you active in this?
- Mrs. PORTER. May I explain myself? I really wasn't active, although it is very customary in Soviet Union when people at the job belong to this organization. It is the patriotic thing to do, and I have been not exactly forced but have been reminded that it would be more ethical if I do belong to this organization. So I kept refusing it. So finally they said you don't have to do anything if you just pay your dues. So that is what I did for many months. But I never attended meetings at all, except at the end when they finally discharged me from the organization, I had to attend that meeting.
- Mr. PREYER. So that if I understand you, you are saying it was customary to join this organization at your place of work.
- Mrs. PORTER. Yes.
- Mr. PREYER. And that it was social pressure which compelled you.
- Mrs. PORTER. Yes, you have to kind of go with the crowd.
- Mr. PREYER. And you did, members did pay their dues regularly, and you paid your dues regularly.
- Mrs. PORTER. Yes.
- Mr. PREYER. Did Lee ever talk about United States politics after you were married, that is, did he talk about officials of the United States, such as the President or the Secretary of State or, did he talk about policies of the U.S. Government?
- Mrs. PORTER. If he did, he wasn't talking to me about it, because he wasn't really interested in his political view or anybody's political view.
- Mr. PREYER. Specifically did he ever talk about President Kennedy?
- Mrs. PORTER. Whatever he said about President Kennedy, it was all good, always.
- Mr. PREYER. What was your attitude about the United States at this time?
- Mrs. PORTER. In Russia you mean?
- Mr. PREYER. Yes, when you were first living in Russia.
- Mrs. PORTER. Well, seeing few American tourists in city of Leningrad, I learned that the life is not as bad in United States as it is painted in newspaper. So, of course, every Russian is very curious, not every Russian, but majority of young people, very curious about Western World.
- Mr. PREYER. From Lee's conversation, did you think he wanted to become a citizen of the Soviet Union at this time?
- Mrs. PORTER. Once Lee, I believe he applied for, he sent a letter to a university in Moscow, and he was very, very disappointed when he was refused to become a student of this university, and I think that maybe was a changing point about him staying or leaving the Soviet Union. He was very disappointed. I do assume that he might have stayed longer, or maybe forever, if he was granted permission to become a student.
- Mr. PREYER. When he was not given that permission, his attitude then changed toward becoming a Soviet citizen?

Mrs. PORTER. If I may speculate right now, that was the reason. At least I assumed that he did want to come to Soviet Union to get education.

Mr. PREYER. Were you surprised when Lee said he wanted to leave the Soviet Union and come to the United States?

Mrs. PORTER. Yes, I was, because he told me that he would not be able to or really wanted to.

Mr. PREYER. Were you pleased that he wanted to come to the United States?

Mrs. PORTER. Not really, nothing against United States, but it was a very major decision for me to make. I did not know that much about United States. So to leave everything behind was quite hard.

Mr. PREYER. Did you ever suspect that Lee might be a spy of some sort for either the Soviet KGB or for the U.S. CIA?

Mrs. PORTER. Well, it crossed my mind sometime. I am sorry to admit that.

Mr. PREYER. I am sorry?

Mrs. PORTER. It did cross my mind sometime during our life in Russia; yes, because he will be sitting with those papers and writing something in English, and I don't know. Maybe he was making reports to somebody and didn't want me to know.

Mr. PREYER. When it crossed your mind, did you think he was a spy for the United States or for the Soviet Union?

Mrs. PORTER. For United States.

Mr. PREYER. And you based that on the fact that he often was writing notes in English which you did not understand.

Mrs. PORTER. Yes.

Mr. PREYER. Did you ever learn later what those notes were, or the writing he was doing?

Mrs. PORTER. I learned about that after Lee died. That is what they call Lee Harvey Oswald diary, or something like that. That is what it was.

Mr. PREYER. So that all of the writing on which you based your thought that he could have been a spy later turned out to be the diary that he was writing.

Mrs. PORTER. Yes, sir.

Mr. PREYER. I mentioned earlier the Komsomol, the Communist youth organization. I believe you were expelled from that organization.

Could you explain to us why that happened?

Mrs. PORTER. Excuse me, I do not understand end of your question.

Mr. PREYER. The Communist youth organization, Komsomol, if pronounce it correctly, which you joined when you were working at your place of employment, later you were expelled, that is, removed from that organization, kicked out we might say in this country.

Would you explain to us how that happened?

Mrs. PORTER. After I married Lee, the atmosphere at work was changing. I mean I was aware then more so who is my friend and who is not. A few people were kind of, act quite cold toward me and the pressure at work was put, since I felt like I was a traitor, married foreigner, I should not belong to this organization.

Mr. PREYER. So that the fact that you were married to a foreigner was the principal reason that you left the organization.

Mrs. PORTER. I believe so.

Mr. PREYER. When you were in the Soviet Union at this period, did you ever hear President Kennedy speak over the radio?

Mrs. PORTER. Yes.

Did you ask me if I heard or Lee did?

Mr. PREYER. First, I will ask if you heard.

Mrs. PORTER. Yes, I did, but of course I could not understand what he was talking about.

Mr. DODD. Will the gentleman suspend for just 1 second? I just thought it might be worthwhile, Mrs. Porter, we have a recorded vote on, and if you saw everyone leave here all at once, they are just going over to vote and will be coming right back.

Mrs. PORTER. OK.

Mr. PREYER. Thank you, Mr. Chairman.

Was Lee with you when you heard President Kennedy speak over the radio?

Mrs. PORTER. As far as I recall right now, I think he was, because he is the one who tuned the radio on the right station. I believe it was BBC or Voice of America, something like that. It wasn't broadcast through Moscow or any Russian channels.

Mr. PREYER. So that Lee was the one who turned the radio to the channel to hear the President.

Mrs. PORTER. We had a shortwave radio, I believe that is what you call, when you can listen to the foreign stations.

Mr. PREYER. What was your reaction and what was Lee's reaction to hearing the President speak over the radio?

Mrs. PORTER. Well, I kept bugging him what is he saying, what is he saying, and he just told me to hush up, you know, not to interrupt him.

Mr. PREYER. So he told you to hush up.

Mrs. PORTER. Yes.

Mr. PREYER. Did he ever make any comment about the President's speech?

Mrs. PORTER. I do believe that Pavel Golovachev might have been present at this time, so they really discussed it between the two of them, and of course Lee's attitude maybe was that, you know, me being a woman, what do you know about politics, you know. So I really do not recall what the comments were.

Mr. PREYER. When did you first learn that Lee wanted to leave the Soviet Union?

Mrs. PORTER. A few months after we were married. I do not recall exact month. It could be May or June, June probably, more likely.

Mr. PREYER. And I believe you testified that you were surprised at that.

When you left Russia, did you expect to return to Russia?

Mrs. PORTER. No; I burned all my bridges behind me.

Mr. PREYER. So that you did not expect that you would return either with Lee or alone.

Mrs. PORTER. No.

Mr. PREYER. What was the reaction of your family to your leaving the Soviet Union?

Mrs. PORTER. Well, they were very, very upset for me making decision of leaving country. My uncle was worried about welfare of his family, and he was even afraid that he might lose his job on that account, being related to me.

Mr. PREYER. When you arrived in New York from the Soviet Union, did Lee bring his rifle with him?

Mrs. PORTER. I don't remember. I don't think it can go through the customs with the rifle.

Mr. PREYER. You did go through the customs in New York?

Mrs. PORTER. Yes.

Mr. PREYER. And as far as you know, no rifle was found, no comment was made about a rifle at that time.

Mrs. PORTER. Not that I know of.

Mr. PREYER. Did Lee seem pleased to be back in the United States?

Mrs. PORTER. I think so. He was a little bit disappointed when no reporters show up to greet him at the airport, because he told me there is going to be a whole bunch of them.

Mr. PREYER. Before you left Russia, did Lee say where you would be going in the United States?

Mrs. PORTER. Yes; he said that he has a brother living in Texas in Dallas, or Fort Worth.

Mr. PREYER. Was that why you were going to Texas—

Mrs. PORTER. Yes, sir.

Mr. PREYER [continuing]. Because of his relatives living there?

Mrs. PORTER. Yes.

Mr. PREYER. Did he mention any other place in the United States where he might like to live?

Mrs. PORTER. Oh, he also told me he has relatives in New Orleans. We might live there sometime.

Mr. PREYER. When you arrived in Texas, who met you at the airport?

Mrs. PORTER. Robert Oswald and his family.

Mr. PREYER. Did you meet any of Lee's friends in Fort Worth apart from his brother?

Mrs. PORTER. I don't recall. I don't think so.

Mr. PREYER. Where were you staying at Fort Worth?

Mrs. PORTER. We stayed for a while with his brother.

Mr. PREYER. While you were there, did any friends call Lee or the telephone?

Mrs. PORTER. Not that I know of.

Mr. PREYER. Do you recall whether he called anyone to say he was back in the United States?

Mrs. PORTER. Well, I did not speak English at the time, so if he used the phone, if somebody called for somebody, I wouldn't know about that, unless he told me.

Mr. PREYER. At that time you and Lee conversed, discussed only in Russian?

Mrs. PORTER. Yes.

Mr. PREYER. At this time when he first returned in Texas, did he talk about politics or did he mention President Kennedy again at any time?

Mrs. PORTER. Off and on, but it was always complimentary something good.

Mr. PREYER. Did he talk in general about any other politicians or public figures in the United States at this time?

Mrs. PORTER. Not that I recall; no.

Mr. PREYER. Thank you.

I will yield at this time, Mr. Chairman, to Mr. McDonald for the next area of questions.

Mr. FAUNTROY. Mr. McDonald.

Mr. McDONALD. Thank you, Mr. Chairman.

Mrs. Porter, I would just like to backtrack for a couple of questions in the Russian phase of our questioning.

You mentioned earlier because of the way he was writing in English in a book that you might have suspected perhaps he was a spy or something of that nature.

Did he ever act suspiciously in any other way? In other words, did he ever go out at night and meet individuals unknown to yourself, did he act in any other suspicious manner?

Mrs. PORTER. No. It is customary in Russia to go for a walk after dinner, and if I want to, I can go along, or he might go visit some friends, and I took his word for it. If he said he goes see Pavel for a while, that is just fine with me.

Mr. McDONALD. Mrs. Porter, did you and your husband have any Cuban friends in Minsk?

Mrs. PORTER. Not friends, but I think Lee met some Cuban students that were going to university in Minsk.

Mr. McDONALD. Do you recall their names?

Mrs. PORTER. I do believe he mentioned some names, but I do not recall them at all.

Mr. McDONALD. And how well did you know them?

Mrs. PORTER. I did not know them at all.

Mr. McDONALD. How well did your husband know them?

Mrs. PORTER. Oh, they might just walk in the street and talk about something, that is what he said.

Mr. McDONALD. You say they came over to your apartment?

Mrs. PORTER. No.

Mr. McDONALD. Did they ever?

Mrs. PORTER. Not that I recall.

Mr. McDONALD. Do you know how often Lee met with them?

Mrs. PORTER. No, I don't.

Mr. McDONALD. You say they were students at the university?

Mrs. PORTER. Yes.

Mr. McDONALD. And Lee worked in a radio plant?

Mrs. PORTER. Yes.

Mr. McDONALD. How did they come to meet?

Mrs. PORTER. Well, the city is not that big. Its population is only one-half million people, and it had a main street where people meet sometimes, you know, for a cup of coffee, in the square or a park or something like that.

Mr. McDONALD. Did Lee tell you that he had met some Cuban students?

Mrs. PORTER. I think he did.

Mr. McDONALD. How did he say? What did he say?

Mrs. PORTER. Well, please do forgive me for saying I do not remember, but it was 15 years ago. It was a long time ago. I do not remember the details, really, right now.

Mr. McDONALD. Can you recall the first time he mentioned meeting some Cuban students, whether he seemed pleased by the fact that he had met some?

Mrs. PORTER. Well, he would make comment, for example, like, well, "I did not like Russian winter. So that those Cuban students, they are freezing too," you know, or maybe mention that they weren't very happy to study there. They had been sent by government. They don't have the freedom that they used to in their own homeland.

Mr. McDONALD. At this time did he speak of Cuba? Did Lee speak of Cuba in favorable terms? Did he talk about Cuba at all?

Mrs. PORTER. Yes.

Mr. McDONALD. What did he say?

Mrs. PORTER. He did like Fidel Castro, and at the time so did I, because he was presented to Russian public as a very good fellow. So at the time all Soviets, I mean all young people were curious about new government in Cuba and how they will do it, and so he was very appealing at the time.

Mr. McDONALD. What did Lee say about Fidel?

Mrs. PORTER. He said that he did like him as a leader very well.

Mr. McDONALD. Do you know how often, after Lee met the Cuban students, do you recall whether he met with them frequently or met with them at all?

Mrs. PORTER. Let's assume maybe once a week, sometime. Maybe he doesn't see them for 2 weeks and stumble over or maybe they have special date and they go to the movie or whatever.

Mr. McDONALD. Where were they meeting, do you know?

Mrs. PORTER. Usually in the street or in the park somewhere, or main street.

Mr. McDONALD. Do you know in what language they were speaking?

Mrs. PORTER. Well, I really don't know how did they communicate. It never occurred to me. Maybe the students spoke English.

Mr. McDONALD. Is it your testimony—

Mrs. PORTER. Lee did not speak Spanish, as far as I know, so I assume maybe they spoke English. I hate to speculate on that.

Mr. McDONALD. Just so we are clear on the point—

Mrs. PORTER. Yes.

Mr. McDONALD [continuing]. Did you ever meet the Cuban students?

Mrs. PORTER. No, so I do not know how they communicate with each other.

Mr. McDONALD. And over how long a period of time did Lee meet with these students?

Mrs. PORTER. Maybe a few months.

Mr. McDONALD. And your testimony is that as far as you know, they met maybe once a week?

Mrs. PORTER. I assume because when Lee left, he said he going to see somebody, and he stumble over them or see them, maybe sometime he tell me and sometime he does not, so I do not know.

Mr. McDONALD. During this time in the Soviet Union, did Lee Harvey Oswald ever demonstrate any violent tendencies, any anti-social tendencies, either to you personally or in general?

Mrs. PORTER. Well, he would lose temper a few times, but he was pretty good at controlling it. You know naturally during the marriage husband and wife do fuss sometimes.

Mr. McDONALD. But it is your testimony that his behavior was not——

Mrs. PORTER. He wasn't really violent, no.

Mr. McDONALD. And you are saying not out of the ordinary?

Mrs. PORTER. Pardon me?

Mr. McDONALD. Nothing unusual about——

Mrs. PORTER. No.

Mr. McDONALD [continuing]. His behavior at that time.

Mrs. PORTER. No.

Mr. McDONALD. Mrs. Porter, going back again to your first few days and weeks in Texas in 1962, when did you first—this may not apply just to them—when did you first learn about Oswald's mother, Marguerite?

Mrs. PORTER. I learned about her in Soviet Union, because Lee was corresponding with her.

Mr. McDONALD. I am sorry, I didn't——

Mrs. PORTER. After we were married, Lee and his mother correspond with each other.

Mr. McDONALD. And you were not aware of her before you got married?

Mrs. PORTER. No.

Mr. McDONALD. And what was your reaction when Lee told you that his mother was in fact alive?

Mrs. PORTER. What was my reaction?

Well, I really didn't have any reaction. It is wonderful that he had a mother.

Mr. McDONALD. Except wasn't there a point when he completely covered up the fact that he had a mother?

Mrs. PORTER. Well, I really do not recall what my reaction was at the time.

Mr. McDONALD. Did you think him to be devious at that time? In other words, you found out after you got married that his mother was alive and he never mentioned her beforehand to you?

Mrs. PORTER. Well, it was kind of strange, you know, behavior, really.

Mr. McDONALD. When did you first meet her?

Mrs. PORTER. After we arrived at Fort Worth.

When, you said?

Mr. McDONALD. Yes, when.

Mrs. PORTER. In June I believe of 1962.

Mr. McDONALD. And was Lee present?

Mrs. PORTER. I don't recall the circumstances of the meeting.

Mr. McDONALD. Did you know George DeMohrenschildt?

Mrs. PORTER. Did I know him? Yes.

Mr. McDONALD. How did you know him?

Mrs. PORTER. He was one of Russian friends that we have right here, Russian emigrants.

Mr. McDONALD. When did you first meet him?

Mrs. PORTER. I do believe in 1962 shortly after arrival to United States.

Mr. McDONALD. And what were the circumstances of your first meeting with George DeMohrenschildt?

First of all, where were you?

Mrs. PORTER. I assume right now, as I remember right now, I think we have been invited for lunch or dinner at some Russian friends' house and lots of Russian people did come, and that is how we met.

Mr. McDONALD. Do you recall whose home you were visiting?

Mrs. PORTER. I do believe Anna Miller.

Mr. McDONALD. Anna Miller?

Mrs. PORTER. Anna Miller. That is how I remember right now as I met George DeMohrenschildt. Maybe I met him, maybe he came to our house. I do not recall right now exactly.

Mr. McDONALD. Do you recall on the first occasion you met him, was his wife present with him?

Mrs. PORTER. I don't remember.

Mr. McDONALD. Was Lee present when you met?

Mrs. PORTER. Probably was.

Mr. McDONALD. Was that also the first time that Lee ever met DeMohrenschildt?

Mrs. PORTER. I don't remember really if we met him together or he met him previously. I do not recall right now at all.

Mr. McDONALD. What did Lee say about George DeMohrenschildt?

Mrs. PORTER. He did like him very much. So did I.

Mr. McDONALD. Did he like him from the first time you met him? In other words, in remembering back, did it appear that the first time you met him was the first time Lee had met him as well?

Mrs. PORTER. I don't remember how we met him, together or somehow separate, but I know for a fact we both liked the man very well.

Mr. McDONALD. What did Lee say about him?

Mrs. PORTER. Good fellow, George, I guess.

Mr. McDONALD. Why did Lee like him so much?

Mrs. PORTER. Well, most people who knew George, liked him. He has a very vivacious personality, always cheerful and joking. He was very pleasant to be around.

Mr. McDONALD. Did he like Lee?

Mrs. PORTER. Well, I assume at the time that he did.

Mr. McDONALD. When they spoke, did they speak in Russian or in English?

Mrs. PORTER. In Russian and English both.

Mr. McDONALD. Did Lee and DeMohrenschildt ever talk politics in your presence?

Mrs. PORTER. They probably have.

Mr. McDONALD. Can you recall any such conversations?

Mrs. PORTER. No.

Mr. McDONALD. Can you recall in your presence whether George DeMohrenschildt and Lee ever spoke about President Kennedy?

Mrs. PORTER. If I say right now that, yes, I do, they probably talked about, and then you ask me about the details which I cannot remember, but, yes, the name John Kennedy was mentioned in their conversation.

Mr. McDONALD. Can you recall in what context? In other words, were they speaking favorably of Kennedy?

Mrs. PORTER. I think so. Well, I recall that George DeMohrenschildt told me once that when he was younger, I mean he knew Jackie Kennedy before she was married to John Kennedy when she was a young lady and spoke very nicely about her.

Mr. McDONALD. And how about Lee's views at the time? Do you recall whether they were ever engaged in argument?

Mrs. PORTER. I do not recall ever hearing Lee talking badly about John Kennedy or Kennedy family.

Mr. McDONALD. In some of these discussions Lee had with DeMohrenschildt—

Well, do you recall what DeMohrenschildt's opinion of the Soviet Union was?

Mrs. PORTER. Well, George DeMohrenschildt always joked a lot, and you really don't know if that was his real opinion or just a joke, so, of course, he was curious how things changed since he—I mean I didn't really know if he was living there or was born there. I do not remember, but he was curious about life in Soviet Union; yes.

Mr. McDONALD. After Lee got back to the United States, what was his opinion then of the Soviet Union?

Mrs. PORTER. After he come back to United States?

Well, he was very glad that he was back home, at least at the beginning. I do not recall him saying that he was sorry he left Soviet Union.

Mr. McDONALD. Do you recall that he was sorry or that he was not sorry that he left?

Mrs. PORTER. He was not sorry.

Mr. McDONALD. When Lee first got to Fort Worth, you first went here when you went back to Texas, was he contacted by the FBI?

Mrs. PORTER. That is what he told me, that the gentleman who wanted to talk to him, came along, was FBI agent. That is what he told me.

Mr. McDONALD. When did he tell you about this?

Mrs. PORTER. After living with Robert for a while we moved in our home and Lee on the job and one afternoon some gentleman came knocking on the door.

Mr. McDONALD. This is Robert Oswald, his brother?

Mrs. PORTER. Yes.

Mr. McDONALD. You are saying living with Robert?

Mrs. PORTER. Oh, yes, and Lee went outside and talk with this man, and when he come back, he told me that it was the FBI who were bugging him, asking questions about the Soviet Union, things like that.

Mr. McDONALD. What was Lee's reaction? How did he appear to you when he came back in?

Mrs. PORTER. Well, he was very knot up—quite angry about it. He told me that it would be very difficult for him to find a job or keep a job if they keep bugging him.

Mr. McDONALD. How many agents came to the house?

Mrs. PORTER. I do not really recall. Maybe one or two.

Mr. McDONALD. You were home at the time? You were there?

Mrs. PORTER. Yes, I was busy in the kitchen.

Mr. McDONALD. Did they come to the door and ring the doorbell or knock?

Mrs. PORTER. I don't recall right now. They probably have.

Mr. McDONALD. Were they requested to come inside or did they ask to speak to Lee outside?

Mrs. PORTER. I do not know what they said, because I do not speak English, so whose initiative it was about going outside or speaking in the house, I do not know.

Mr. McDONALD. And where did they speak?

Mrs. PORTER. Outside.

Mr. McDONALD. In a driveway, a sidewalk, front yard?

Mrs. PORTER. On the sidewalk, I believe.

Mr. McDONALD. And about how long did this meeting take place?

Mrs. PORTER. It was quite long time. I assume by now maybe 30 or 40 minutes, maybe an hour.

Mr. McDONALD. You subsequently moved out of Robert Oswald's house to an apartment on West Seventh Street in Fort Worth?

Mrs. PORTER. Well, I don't remember the address, but you do about it, more than I do.

Mr. McDONALD. Yes, and did Lee's mother live with you at that time?

Mrs. PORTER. I do believe after Robert, we move with his mother.

Mr. McDONALD. Did you have any visitors when you lived in this apartment with his mother?

Mrs. PORTER. I don't remember. I don't think so.

Mr. McDONALD. Did Lee Oswald's personality—

What was his personality like upon getting back to the United States, comparing it with as you knew him in the Soviet Union?

Mrs. PORTER. Well, he had a hard time to find a job at the beginning, and little by little he became a little bit more sour.

Mr. HAMILTON. Mr. Chairman, could we break for 5 minutes, please?

Chairman STOKES. We certainly may take a 5-minute recess at this time.

Everyone is requested to remain seated until the witness has left the hearing room.

[Recess.]

Chairman STOKES. The committee will come to order.

Everyone is requested to please take their seats.

Mr. McDonald.

Mr. McDONALD. Thank you, Mr. Chairman.

Mrs. Porter, the last question I asked you was, did you notice any changes in personality, a change in Lee, once you got back in the United States, comparing him as to how you knew him in the Soviet Union?

Mrs. PORTER. Well, little by little he became gloomier, or disillusioned.

Mr. McDONALD. Gloomier.

And do you know why?

Mrs. PORTER. At the time I assume because it was like holding a job or finding a job that he liked to do. It seemed to me that he was with the time passing, he was dissatisfied with the job that he was holding.

Mr. McDONALD. He got a job in Fort Worth; is that correct?

Mrs. PORTER. Yes, sir.

Mr. McDONALD. And where was that job?

Mrs. PORTER. I do not really know the name of the firm he worked for.

Mr. McDONALD. What was he doing?

Mrs. PORTER. It was some kind of mechanical job.

Mr. McDONALD. It was within walking distance of where you lived?

Mrs. PORTER. I think so.

Mr. McDONALD. Did he ever discuss his job, this job, with you?

Mrs. PORTER. Only thing he said, that he did not like it very much.

Mr. McDONALD. Did not like it?

Mrs. PORTER. Yes.

Mr. McDONALD. During this time when you lived in Fort Worth, at any time for that matter within the first month or so after you got back from the Soviet Union, did you ever have occasion to meet any of Lee's friends, friends from Texas?

Mrs. PORTER. No. We met a few Russian people, and they were our friends at the time we lived there.

Mr. McDONALD. How about non-Russian people?

Mrs. PORTER. No.

Mr. McDONALD. Did Lee ever talk about friends or associates that he had in Texas before he went to Russia?

Mrs. PORTER. No.

Mr. McDONALD. Never mentioned any?

Mrs. PORTER. Not to my knowledge right now. I don't recall any names, faces.

Mr. McDONALD. Did you ever have visitors at your apartment on West Seventh Street, the one that you shared with Marguerite?

Mrs. PORTER. Marguerite? No.

Mr. McDONALD. You had no visitors to the apartment?

Mrs. PORTER. I don't recall any visitors.

Mr. McDONALD. Did Lee read books often?

Mrs. PORTER. Yes.

Mr. McDONALD. Did he read a lot when he was in the Soviet Union?

Mrs. PORTER. Yes.

Mr. McDONALD. What kind of books did he read there?

Mrs. PORTER. Novels mostly.

Mr. McDONALD. What kind of novels?

Mrs. PORTER. What you call maybe as classical novels, some Russian classic writers.

Mr. McDONALD. The novels or the books that he read in the Soviet Union, were they in Russian?

Mrs. PORTER. They were in Russian; yes.

Mr. McDONALD. How about when he returned to Texas, did he continue his interest in reading?

Mrs. PORTER. Yes.

Mr. McDONALD. What kind of books was he reading when he returned?

Mrs. PORTER. Well, he has access to the library, and whatever books he brought, they were in the English language. I don't know

the titles of them, but he brought some Russian books for me to read too.

Mr. McDONALD. Did he read any books of a political nature?

Mrs. PORTER. If he did, I do not know about.

Mr. McDONALD. Did Oswald talk about politics very much during this time in Fort Worth?

Mrs. PORTER. Lee really did not discuss politics with me. If I overheard some conversation with somebody else, just bits and pieces, I have to place them in my memory right now to give you the tone of the conversation.

Mr. McDONALD. Who did he talk politics with? You mentioned earlier George DeMohrenschildt.

Mrs. PORTER. Many were with George, about latest events in the newspapers, something like that, in that matter.

Mr. McDONALD. Up to this time, and we are only talking up to this time in Fort Worth, on your early arrival, had you ever heard Lee ever mention in discussion or did you ever overhear him talking with anyone about assassination as a political act?

Mrs. PORTER. No.

Mr. McDONALD. Did you ever hear him talk at all about assassination up to this point?

Mrs. PORTER. No.

Mr. McDONALD. What was Lee's relationship with the Soviet—excuse me—the Russian group of individuals in the Dallas-Fort Worth area? What was Lee's relationship with them?

Mrs. PORTER. It seemed to me at the beginning he was quite eager to meet Russian people living in Fort Worth or in Dallas, but little by little he felt like withdraw from it. He felt like they have too much influence on me, or I don't think that he felt very comfortable around.

Mr. McDONALD. Was it your understanding that he knew any of these individuals before he went to the Soviet Union?

Mrs. PORTER. No, I don't think he knew them before.

Mr. McDONALD. But he met them after he returned?

Mrs. PORTER. Yes.

Mr. McDONALD. Mrs. Porter, you testified earlier that when in Russia you recall that Lee owned a rifle.

Mrs. PORTER. Yes.

Mr. McDONALD. Or some kind of weapon.

Mrs. PORTER. Yes.

Mr. McDONALD. Do you remember whether it was a rifle as opposed to a shotgun?

Mrs. PORTER. What the difference between shotgun? Is it size or what?

Mr. McDONALD. It is a different kind of bullet or projectile that comes out.

Do you know the difference between a shotgun and a rifle?

Mrs. PORTER. No.

Mr. McDONALD. OK.

When do you first recall seeing Lee with a rifle in the United States?

Mrs. PORTER. I cannot pinpoint exact month, you know, date of any kind.

Mr. McDONALD. Where did you first see it?

Mrs. PORTER. I do not remember where or when, but I can say that Lee did have a rifle during life in the United States.

Mr. McDONALD. Do you know whether it was the same rifle that he had in the Soviet Union?

Mrs. PORTER. Well, logically it cannot be, because you cannot go through the customs without declaring the rifle. I would not really know.

Mr. McDONALD. Mr. Chairman, let the record reflect that Mrs. Porter was unable to identify Lee Harvey Oswald's rifle, which was marked CE-139 before the Warren Commission. She was unable to identify it in 1964 when she testified before the Warren Commission, and consequently we will not show it to her today since such a showing would serve no useful purpose.

Mrs. PORTER. Thank you.

Mr. McDONALD. When you first saw the rifle in the United States, did you ask him what it was for?

Mrs. PORTER. I don't remember what I asked him about. I know I wasn't pleased of having a rifle in the house.

Mr. McDONALD. What did he say about it?

Mrs. PORTER. Well, in a matter of, that it's a manly thing to like something like that. Most men do like to hunt or do like to play with the rifle.

Mr. McDONALD. Do you recall seeing him taking it out frequently from wherever he kept it, either to handle it or to clean it, to look at it, do whatever?

Mrs. PORTER. Yes, I did see him cleaning the rifle. That is true.

Mr. McDONALD. How often?

Mrs. PORTER. Maybe once a week.

Mr. McDONALD. Where did he keep this rifle?

Mrs. PORTER. In his closet.

Mr. McDONALD. When you refer to the "closet," what apartment are you referring to? At what apartment are we talking about?

Mrs. PORTER. I do not recall any apartment, but maybe one in Dallas.

Mr. McDONALD. The one on Neely Street?

Mrs. PORTER. Neely Street; yes.

Mr. McDONALD. And you say he kept it in the closet?

Mrs. PORTER. Yes, because in New Orleans he had the rifle, the same rifle, and he kept it in the closet there too. Every apartment has a closet.

Mr. McDONALD. Did you notice any change in his personality after he obtained this rifle?

Mrs. PORTER. Well, Lee liked to be alone by himself quite often. That was a part of his personality, so that wasn't really anything new. But his behavior pattern toward me changed. He was very annoyed by me. It seemed like I felt out of place.

Mr. McDONALD. Did you ever see him—you said that you would see him taking it out and cleaning it.

Did you ever see him while he was in the apartment pick up the rifle and to aim it like he would be practicing shooting?

Mrs. PORTER. He would do that in New Orleans in apartment, you know the screened porch. He would sit there in the dark with

Mr. McDONALD. He would sit in a chair; and he would bring it up to his shoulder?

Mrs. PORTER. I don't know what he was sitting on, but I knew it was in front of his face or whatever.

Mr. McDONALD. Do you recall when you first saw this rifle in Texas, whether it had a scope on it?

Mrs. PORTER. I would not remember that at all.

Mr. McDONALD. Do you know what a scope is?

Mrs. PORTER. Well, I learned later, since all this happened, what a scope is. I don't know that much about rifles, nothing at all, really.

Mr. McDONALD. Thinking back, can you recall whether the rifle had a scope on it? It would be attached to the rifle.

Can you recall?

Mrs. PORTER. No, I don't.

Mr. McDONALD. When did you learn the difference between rifles with and without scopes?

Mrs. PORTER. I really did not learn the difference. I just know what the scope more or less is right now, that it is attachment that make target more visible.

Mr. McDONALD. But did you know then what a scope was?

Mrs. PORTER. No.

Mr. McDONALD. Did he keep, did Oswald keep, ammunition, cartridges around the apartment?

Mrs. PORTER. He kept rifle and I guess ammunition, what you call, all together, and I wasn't fascinated by rifles, so I never took any interest to look at it or see what it looks like, so I just simply ignored it most of the time.

Mr. McDONALD. Do you recall these times when he had the rifle out whether—

You say in New Orleans he would sit on the screened porch?

Mrs. PORTER. Yes.

Mr. McDONALD. And we are referring to the Magazine Street apartment?

Mrs. PORTER. Yes.

Mr. McDONALD. Do you remember what he would do? I mean you say you don't know whether he was sitting.

Is that your testimony?

Mrs. PORTER. Well, it was usually after dark, so if I go over there, you know, just see that he is there, and I come back in the apartment, so I just knew he was there with the rifle. He always, most of the time, he said "Just leave me alone," you know. That is what I will do.

Mr. McDONALD. Can you recall overhearing the sound of Lee handling the rifle? In other words, do you recall when he would be sitting on the porch, do you recall loud sounds of what would be moving the bolt or the action on the rifle?

Mrs. PORTER. I do not recall right now.

Mr. McDONALD. If you think about it for a minute, do you recall that kind of sound, the sound of metal on metal, sort of a clacking sound?

Mrs. PORTER. Not that I remember it; no.

Mr. McDONALD. Did you ever see him move the action of the rifle?

Mrs. PORTER. I told you I did not pay attention to what he was doing that much, to give you the descriptions, if he changed the positions or was it any sounds, because I wasn't listening for it.

Mr. McDONALD. Do you know or do you remember any time when he would handle the rifle when it seemed like he would be shooting at something, an imaginary object?

Mrs. PORTER. No, I cannot.

Mr. McDONALD. Pulling the trigger?

Mrs. PORTER. No, I cannot tell you that. It seemed to me that most of the time he picked out the time to be with his rifle, when I was busy with something else. At the time I did not pay any attention. Whether it was deliberate or not, I do not know.

Mr. McDONALD. Did you ever handle the rifle? Did you ever hold it?

Mrs. PORTER. I might have touched it sometime to move the place if you clean the closet.

Mr. McDONALD. Did you ask him where he obtained this rifle?

Mrs. PORTER. No, I didn't.

Mr. McDONALD. Did he ever take it out, outside the apartment, to practice with it, to do anything with it?

Mrs. PORTER. Yes, he did.

Mr. McDONALD. And what did he do?

Mrs. PORTER. He will, like before it gets very dark outside, he would leave apartment dressed with the dark raincoat, even though it was a hot summer night, pretty hot weather anyway, and he would be wearing this, and he would be hiding the rifle underneath his raincoat. He said he is going to target practice or something like that.

Mr. McDONALD. This was one occasion you are talking about with the raincoat?

Mrs. PORTER. It is several occasions, maybe more than once.

Mr. McDONALD. He did the same thing on several occasions, put the raincoat on?

Mrs. PORTER. Yes.

Mr. McDONALD. And the rifle under the raincoat?

Mrs. PORTER. Yes.

Mr. McDONALD. And how long would he be gone?

Mrs. PORTER. A few hours.

Mr. McDONALD. And what did he say as he was going out to do this? Did he have any specific comment? Did he tell you any reason?

Mrs. PORTER. Well, he said that it is a practice range somewhere apparently. That is the purpose of him taking the rifle, in order to practice.

Mr. McDONALD. Mrs. Porter, let me direct your attention to approximately April 10, 1963. April 10 is the day that Lee Harvey Oswald allegedly shot at Gen. Edward Walker in Dallas.

Before I get to that specific question, let me ask you one further one, in general about the rifle, and that is you say on occasion he went out to practice wearing the raincoat.

Do you know how he got to the area that he was going to practice shooting the rifle?

Mrs. PORTER. He told me by the bus, so I thought it was kind of a little, would be suspicious for the people in the bus to see him

wearing the raincoat, you know, well, but that is what he told me, that he took a bus.

Mr. McDONALD. When he put this raincoat on and had the rifle underneath, could you see this rifle? Could you see it?

Mrs. PORTER. The raincoat was quite long.

Mr. McDONALD. Below the knee? Did it come below the knee?

Mrs. PORTER. You could not see that it was a rifle. You would not spot it.

Mr. McDONALD. Going back to approximately April 10, in the week preceding the General Walker shooting, did you notice any change in Oswald's personality during that time? How was he acting?

Mrs. PORTER. Well, I cannot compare right now, you know, because it was long time ago, but his personality constantly was changing to the worst, really. He became more withdrawn and more hostile to everybody, maybe more short tempered.

Mr. McDONALD. During the week preceding April 10—

Mrs. PORTER. Well, he will spend lots of time alone in this closet that he converted into a little kind of office and he would shut the door and would do some more writing somewhat, and he asked me not to disturb him.

Mr. McDONALD. Directing your attention to that day, April 10, 1963, would you tell us what happened?

Mrs. PORTER. Well, I cannot remember the timing all the very vivid details of day. I just can state it that that particular night he did not come home until very late, and when he did not come home at regular time, I was worried about him. So I found a note addressed to me what to do in case if he did not come home. Of course I was petrified. Nobody I can turn to. But then later that night when he came home, I asked him to explain. He was out of breath and he was pale, and asked him to explain this note, and he said that "I just shot General Walker." So I was very upset and enraged about that, and we had an argument over it.

Mr. McDONALD. Just a second, Mrs. Porter. Let's wait.

[Air raid siren.]

Chairman STOKES. This reminds us of the customary test every Wednesday at 11 o'clock.

Mr. McDONALD. Just one minute.

Mrs. Porter, if you could speak up as best you can—

Mrs. PORTER. OK.

Mr. McDONALD [continuing]. So we can hear you.

Before the siren, you were saying—

Let me ask you the question so you can repeat the answer.

What happened when Lee came home on the night of April 10, 1963?

Mrs. PORTER. He was very pale, as I said, and he was out of breath, and I was asking, I mean asked him to explain about the note that he left for me, and asked him what happened, and he said that he just tried to shoot General Walker. I asked him who General Walker was. I mean how dare you to go and claim somebody's life, and he said "Well, what would you say if somebody got rid of Hitler at the right time? So if you don't know about General Walker, how can you speak up on his behalf?" Because he told me

that he wasn't—just a minute. He said he was something equal to what he called him a fascist. That was his description.

Mr. McDONALD. Did he turn on the television? Did he try to listen?

Mrs. PORTER. We did not have television. He turned the radio on later on, listened for the news, and it wasn't, nothing on.

Mr. McDONALD. You say he was pale?

Mrs. PORTER. Yes.

Mr. McDONALD. Did he appear nervous or distraught?

Mrs. PORTER. I don't know what "distraught" mean?

Mr. McDONALD. Well, other than being pale in color, did he give, did he have any other characteristics, physical characteristics? Did he seem to be shaking or extremely nervous?

Mrs. PORTER. Yes, he was extremely nervous; yes. Then when he heard the news that General Walker wasn't killed, you know, he was kind of angry that he missed it.

Mr. McDONALD. You say he returned late that evening.

Do you recall seeing him go out that morning, the morning of April 10?

Mrs. PORTER. I don't remember. I probably have.

Mr. McDONALD. But it is your testimony he did not come home after work, before going out to try to shoot General Walker.

Mrs. PORTER. I really do not remember right now. He might, didn't come from work, or maybe he left and come back later.

Mr. McDONALD. Do you recall seeing him leave the apartment with the rifle around April 10?

Mrs. PORTER. I don't remember. I am sorry.

Mr. McDONALD. When he returned that evening, about what time did he get back?

Mrs. PORTER. I don't remember the time. Quite late.

Mr. McDONALD. Pardon?

Mrs. PORTER. Pardon me?

Mr. McDONALD. Was it early in the evening, late in the evening?

Mrs. PORTER. I assume it is very late in the evening.

Mr. McDONALD. Did he come in with the rifle?

Mrs. PORTER. No.

Mr. McDONALD. You specifically remember he did not have it?

Mrs. PORTER. Well, as I recall right now, I think a few days later, or the next day or 2 days later, he went and brought the rifle back in the house.

Mr. McDONALD. How did he bring it back? How did he carry it?

Mrs. PORTER. The same way he was taking it out, with the raincoat on.

Mr. McDONALD. With the raincoat?

Mrs. PORTER. Yes.

Mr. McDONALD. Is this the way he would normally take the rifle out of the Neely Street apartment, under the raincoat?

Mrs. PORTER. When he went as he said practice, target practice—

Mr. McDONALD. Yes?

Mrs. PORTER [continuing]. That usually was the procedure.

Mr. McDONALD. But concerning the General Walker incident, do you remember the night, that night, when he came in pale? When he came in, did he have the raincoat on?

Mrs. PORTER. I don't remember. But as I recall right now, I think that he went and he hid the rifle somewhere else.

Mr. McDONALD. He told you this?

Mrs. PORTER. This is what I try to remember right now. I think that is what it was.

Mr. McDONALD. Did he seem pleased when he got home?

Mrs. PORTER. Pleased with what?

Mr. McDONALD. Pleased with what he had done?

Mrs. PORTER. No, he was just nervous and he was eager for listen to the news, but then he was disappointed.

Mr. McDONALD. Excuse me just a second.

Mrs. PORTER, would you like a straight-back chair?

Mrs. PORTER. No, that is fine, all right.

Mr. McDONALD. You mentioned a note, he left you a note.

Mrs. PORTER. Yes.

Mr. McDONALD. Where was this note left?

Mrs. PORTER. I don't remember right now, but I think it could be in the closet, on the table there.

Mr. McDONALD. I am sorry?

Mrs. PORTER. Maybe it is in the closet above his shelf or something like that.

Mr. McDONALD. You found this note before he returned? Did you find it before he returned?

Mrs. PORTER. I think so.

Mr. McDONALD. And what did it say?

Mrs. PORTER. What for me to do in case if he did not come back home.

Mr. McDONALD. And what specifically did it say?

Mrs. PORTER. Well, it was a key to the mailbox, post office mailbox, I think. I really don't remember what the note exactly said right now.

Mr. McDONALD. Was it written in his handwriting?

Mrs. PORTER. Yes.

Mr. McDONALD. And what did you do with the note when he returned home?

Mrs. PORTER. I don't remember.

Mr. McDONALD. Is that note in existence now?

Mrs. PORTER. I don't know.

Mr. McDONALD. Did Lee have a notebook, a book that he used to keep writings in, regarding General Walker?

Mrs. PORTER. I think so.

Mr. McDONALD. What do you remember about it?

Mrs. PORTER. Well, at the time when he was spending lots of time alone in the closet, I thought that he is writing, you know. I don't know, whatever it was, but I learn about that, that was something to do with General Walker. I learned about that later.

Mr. McDONALD. How did you learn about it?

Mrs. PORTER. I don't remember.

Mr. McDONALD. Did he tell you?

Mrs. PORTER. Could have been.

Mr. McDONALD. You learned about it soon after the Walker incident? You learned about the notebook shortly after the Walker incident?

Mrs. PORTER. Probably.

Mr. McDONALD. So who else would be in a position to tell you what the notebook contained?

Mrs. PORTER. You—you probably have access to it.

Mr. McDONALD. No, no, I mean at that time.

Mrs. PORTER. Only Lee, yes, sir.

Mr. McDONALD. Do you recall if that notebook contained photographs?

Mrs. PORTER. I think so.

Mr. McDONALD. What did those photographs depict?

Mrs. PORTER. Well, I remember now it looked like some kind of a house or a road or something like that of that nature, and if I asked him what it was, he said that is General Walker's house.

Mr. McDONALD. And were these photographs attached to a piece of paper, I mean a page of the notebook itself?

Mrs. PORTER. I don't remember right now.

Mr. McDONALD. What happened to that notebook?

Mrs. PORTER. I don't know.

Mr. McDONALD. Do you recall if Lee ever——

Mrs. PORTER. You mean now or then?

Mr. McDONALD. Then, what happened then? Did Lee do anything to the notebook?

Mrs. PORTER. Well, it is possibility that maybe it was destroyed.

Mr. McDONALD. Just 1 second.

Mrs. PORTER. We are speaking now of the notebook that Lee kept on the General Walker shooting.

Mrs. PORTER. OK.

Mr. McDONALD. And you testified that he brought the rifle home a number of days after the incident.

Mrs. PORTER. Yes.

Mr. McDONALD. And you were aware of this notebook that he kept.

Mrs. PORTER. Well, I tried to recall in my memory how these things did happen, and by now maybe I assumed some things, so really I just know it as a fact that Lee did try to attempt on life of General Walker. He told me about that and that is the fact. Details of it, I do not remember. I don't want to mislead you different direction.

Mr. McDONALD. But do you recall Lee ever burning the pages of this notebook in the bathroom?

Mrs. PORTER. Well, afterwards, of course, I was petrified, you know, for what he did. I was afraid and—I was waiting for the police to knock on our door any minute, so I probably even myself would be eager to destroy any evidence that lead to arrest of Lee.

Mr. McDONALD. Do you remember him destroying this notebook?

Mrs. PORTER. I do not remember right now.

Mr. McDONALD. Did you contact——

Well, what was your reaction when he told you that he had attempted to shoot an individual with his rifle?

Mrs. PORTER. Well, all of a sudden I realized that it wasn't just a manly hobby of possessing the rifle. He might, he is capable of killing somebody with it. I was very disappointed to discover that trait of characteristic in my husband. I really didn't have much choice. I had no place to go. I wasn't approve of his actions; no.

Mr. McDONALD. Did you tell any of your friends at the time what had happened?

Mrs. PORTER. No.

Mr. McDONALD. How about the police? Did you tell the police?

Mrs. PORTER. Well, I should have but I didn't.

Mr. McDONALD. Why didn't you?

Mrs. PORTER. Well, I guess whatever sense of loyalty was in me, I would not. I haven't done it, so.

Mr. McDONALD. Over the weeks——

Mrs. PORTER. I couldn't speak English anyway.

Mr. McDONALD. You could not speak English at the time?

Mrs. PORTER. No.

Mr. McDONALD. Over the weeks after the Walker incident, did Lee ever express any views, any confident views, that he attempted to do something and did not get caught? In other words, did he ever say anything that the authorities just couldn't catch him, that he was too smart, something to that effect?

Mrs. PORTER. Well, he made kind of a joking remark about, after listening to the news, that all, everybody kept looking for the car, and he said Americans did not realize some people do walk, you know, so he said he just ran, walked away or ran away from the scene.

Mr. McDONALD. Over the following days and weeks, did he often look in the newspaper for stories regarding this?

Mrs. PORTER. I think so. Lee bought newspaper every day anyway.

Mr. McDONALD. How often did he comment, did he talk to you, about this Walker shooting afterward?

Mrs. PORTER. Pardon me, would you please repeat the question?

Mr. McDONALD. Did he often talk about it afterwards, what he had done, what he had tried to do?

Mrs. PORTER. Well, occasionally. Not that much. He knew that I wasn't approve it, and I didn't want to talk about it or hear about it.

Mr. McDONALD. When he mentioned it to you, did he appear to be boasting, to be proud of what he had done?

Mrs. PORTER. Well, I think he was kind of pleased with himself, with the clever fellow he was and got away with it.

Mr. McDONALD. Did he make any comments that he was going to do it again to Walker?

Mrs. PORTER. I begged him not to try it again, just leave it as it is and lucky that nothing happened afterward.

Mr. McDONALD. And what did he say when you begged him not to do it?

Mrs. PORTER. Well, he gave his promise that he would not do it again.

Mr. McDONALD. In the weeks leading up to the Walker shooting, can you recall any incidents that were out of the ordinary, as far as Lee's behavior toward you?

Mrs. PORTER. Well, I don't recall right now.

Mr. McDONALD. Do you remember whether he met with any individuals? Did he tell you he was going out to meet with anyone?

Mrs. PORTER. No, he didn't.

Mr. McDONALD. Would you tell us what happened when you and Lee first met with George DeMohrenschildt after the Walker incident?

Mrs. PORTER. Well, I heard George DeMohrenschildt making joking remark about how did you miss that, Lee? And so I look at Lee and I thought, gosh, did he tell him that, and he look at me because he thought that I told on him. So as I recall right now, I don't know how George find out or he guess or he just make joke about it.

Mr. McDONALD. Do you know——

There must have been some reason for DeMohrenschildt to guess at it, unless he was told.

Do you recall, in reflection on any of the conversations that they had, whether you heard the name "Walker" being mentioned?

Mrs. PORTER. I do not recall the details right now, so I cannot say who said what after what.

Mr. McDONALD. What did Lee say? Did he tell you that he told George DeMohrenschildt?

Mrs. PORTER. Well, I do not remember his answer.

Mr. McDONALD. Did you tell George DeMohrenschildt about the Walker incident?

Mrs. PORTER. I don't think so.

Mr. McDONALD. Would it have been likely that you might have or would have?

Mrs. PORTER. Well, I was very ashamed of the things what happened. That was something I don't think I would feel like discussing with someone.

Mr. McDONALD. Would George DeMohrenschildt be a person that you might have discussed it with?

Mrs. PORTER. I don't think so. I was very embarrassed of Lee trying to do something like that, so I don't remember what I did then.

Mr. McDONALD. Mrs. Porter, you moved to Dallas in the fall of 1962 to the Neely Street address?

Mrs. PORTER. Probably that's correct.

Mr. McDONALD. Do you recall, this was the time of the Cuban missile crisis in late October 1962?

Can you recall whether, and you have stated that you didn't have a television at the time——

Mrs. PORTER. No.

Mr. McDONALD. Do you remember during this time period whether Lee was concerned with the Cuban missile crisis?

Mrs. PORTER. Yes, he was concerned and I was concerned too, because I would be caught in a position, I don't know, you know, in war between America and Cuba, where would I belong, you know. I mean I was afraid of war.

Mr. McDONALD. What was Lee's view?

Mrs. PORTER. I really don't remember what he said about.

Mr. McDONALD. What did he say about Cuba at the time? Did he express any opinions about what the United States was doing regarding Cuba?

Mrs. PORTER. Well, he did not express that to me, at least not what I can recall, but I know that he was fond of Cuba and Fidel Castro.

Mr. McDONALD. Can you recall, do you remember him listening on the radio to any speeches by President Kennedy during this time period?

Mrs. PORTER. Well, since we didn't have television, we had radio, he did listen to news, yes.

Mr. McDONALD. Can you recall specifically Lee listening to Kennedy on the radio, speaking about the Cuban missile crisis?

Mrs. PORTER. Well, I did not understand English well enough. I just could spot Mr. Kennedy, I mean President Kennedy's voice maybe, but I did not know what he was talking about, and Lee didn't make very many comments, not one that I remember.

Mr. McDONALD. Can you recall any comments that he made about Kennedy at that time?

Mrs. PORTER. Not off hand.

Mr. McDONALD. Pardon?

Mrs. PORTER. Not off hand that I would remember that.

Mr. McDONALD. When you were living at the Neely Street address—

Excuse me just a second.

Mrs. PORTER, when you were living at the Neely Street address, 214 Neely Street, Dallas, did you have any visitors?

Mrs. PORTER. At Neely Street?

Yes, we did have. George DeMohrenschildt did come over quite often, and some Russian people.

Mr. McDONALD. Did you ever have visits by people unknown to yourself but only known to your husband?

Mrs. PORTER. No.

Mr. McDONALD. During this time at Neely Street, was his personality changing at all? I think you testified before that his personality, his demeanor, and his actions toward you—

Mrs. PORTER. Yes, that is correct.

Mr. McDONALD [continuing]. It got worse, progressively worse, after coming here to the United States.

Mrs. PORTER. Yes, and, well, it looked like he kept me just mostly in the house. He didn't want me to associate with anybody. We had lots of arguments at that period, yes.

Mr. McDONALD. At this time, in the spring of 1963, was he demonstrating to you any additional tendencies toward violence—

Mrs. PORTER. Yes.

Mr. McDONALD [continuing]. Other than the Walker shooting? Was he physically abusive toward you?

Mrs. PORTER. Well, right now in my mind I really don't know, I forgot which apartment was Neely Street and which one was on another street, so right now I am thinking about apartment before the Walker, so gradually his behavior did worsen.

Mr. McDONALD. Mr. Chairman, at this time it would be appropriate to take a brief recess until the other members get back, because we have a number of exhibits that we are going to show to Mrs. Porter.

Mr. FAUNTROY. All right, we will recess for 10 minutes.

Will everyone please remain seated, pursuant to the request made by the chairman at the outset of the meeting, while the witness is escorted from the room?

[Recess.]

Chairman STOKES. The committee will come to order. All persons are requested to please take their seats.

Mr. McDonald.

Mr. McDONALD. Thank you, Mr. Chairman.

Mrs. Porter, I have got two exhibits to show you, if the clerk would procure them from the representatives of the National Archives.

We have two photographs to show you. They are Warren Commission Exhibits C-133-A and B, which have been given JFK Nos. F-378 and F-379. If the clerk would please hand them to you, and also if we could now have for display purposes JFK Exhibit F-179, which is a blowup of the two photographs placed in front of you.

Mrs. Porter, do you recognize the photographs placed in front of you?

Mrs. PORTER. Yes, I do.

Mr. McDONALD. And how do you recognize them?

Mrs. PORTER. That is the photograph that I made of Lee on his persistent request of taking a picture of him dressed like that with rifle.

Mr. McDONALD. Please tell us what happened? This was at the Teely Street address.

What happened on this occasion when Lee asked you to take those photographs?

Mrs. PORTER. Well, first of all, I refused to take picture because I did not know how to operate camera, and he told me, he insist that I will take it, and he said he will show me how, if I just push the button. So I took one picture, I think, and maybe he changed the pose, I don't recall. Maybe I took two pictures, but I was very annoyed by all the incidents.

Mr. McDONALD. Mrs. Porter, I would like you to take a look at JFK exhibit F-381, which if the clerk would obtain from the Archives representatives. It is an Imperial reflex camera. It has a Warren Commission number, but I don't have it in front of me—50, CE-750.

Does that camera look familiar, Mrs. Porter?

Mrs. PORTER. I seen this camera when you show me the last time.

Mr. McDONALD. Yes.

Mrs. PORTER. But I do not, I cannot identify it as it belongs to me.

Mr. McDONALD. What did he say to you regarding taking these photographs? How did he approach you?

Mrs. PORTER. Well, he told me that he wanted me to take a picture of him, and I said I do not know how, and when he came dressed with all this thing, I was making remarks like it is a funny way to take a picture and why you want to do it, and it looks like he has some kind of newspaper in his hand.

Mr. McDONALD. Now if you will look at the photographs as are displayed on the exhibit, he is wearing, he is holding a rifle and he has got a handgun in a holster attached to his belt.

Had you seen the handgun before, before you took the photograph?

Mrs. PORTER. I don't think so. Anyway I do not recall.

Mr. McDONALD. Well, do you recall if this was the first time when you were taking the photograph that you had seen him, or that you had known that he owned both the rifle and a handgun?

Mrs. PORTER. It is possible.

Mr. McDONALD. Did Lee appear to be nervous at all when you took the photograph?

Mrs. PORTER. No. He was just angry with me because I refused. was making fun of him.

Mr. McDONALD. Did you use a tripod at all?

Mrs. PORTER. Did I use what?

Mr. McDONALD. A tripod. In other words, was the camera attached to a stand?

Mrs. PORTER. No.

Mr. McDONALD. OK. You held it in your hands.

Mrs. PORTER. Yes.

Mr. McDONALD. Was anyone else around when you took the photograph?

Mrs. PORTER. It was quite embarrassing the way he was dressed, so I assume it was a weekend or maybe Sunday, because I recall the neighbors were gone.

Mr. McDONALD. The neighbors were gone?

Mrs. PORTER. I was grateful for that, yes.

Mr. McDONALD. He waited for that?

Mrs. PORTER. No, I was grateful for that.

Mr. McDONALD. How long did he stay outside when you were taking these photographs?

Mrs. PORTER. Not very long.

Mr. McDONALD. Before the session, before you started taking these photographs, what was he doing?

Mrs. PORTER. Well, he just show me which button to push, you know.

Mr. McDONALD. What I meant was, what was he doing in the house?

Mrs. PORTER. Well, I was busy doing something. Then he called me outside and he want me to do this picture taking.

Mr. McDONALD. After you finished taking the photographs, what happened?

Mrs. PORTER. Well, I went back to my whatever I was doing

Mr. McDONALD. And what did he do?

Mrs. PORTER. I guess change his clothes, put all his ammunition back away.

Mr. McDONALD. You took these photographs in March of 1963; is that correct?

Mrs. PORTER. I don't recall the date, but it looked like a spring day.

Mr. McDONALD. After the photo session was over, did he put the rifle and the handgun away?

Mrs. PORTER. He probably did.

Mr. McDONALD. Can you recall? Did he go out afterward?

Mrs. PORTER. I don't remember.

Mr. McDONALD. This was in March, so it would have been prior to the General Walker incident.

When he had these guns, the rifle in his hand, and you were taking the photograph, did he say anything to you about shooting anyone, political assassination, whatever?

Mrs. PORTER. No.

Mr. McDONALD. No comments at all like that?

Mrs. PORTER. No.

Mr. McDONALD. Now, Mrs. Porter, can you recall how many photographs you took, how many poses? What we have here are two, two poses.

Can you recall whether you took any others?

Mrs. PORTER. No, I don't.

Mr. McDONALD. You don't recall?

Mrs. PORTER. I don't recall.

Mr. McDONALD. OK.

Mrs. Porter, I am now going to show you a photograph which has not been seen by the Warren Commission. For continuity purposes this committee has labeled it 133-C. We have up there A and B. We call it 133-C. It has no relation to the Warren Commission, since they did not see it.

We have also marked it as exhibit, JFK exhibit F-380.

If the clerk would please hand Mrs. Porter committee exhibit F-380, and if we could have displayed a photographic enlargement of it, marked JFK F-180.

Have you had a chance to look at that and compare it with the other two?

Mrs. PORTER. Pardon me?

Mr. McDONALD. Have you had a chance to look at it and compare?

Mrs. PORTER. Yes.

Mr. McDONALD. Have you ever seen that photograph before?

Mrs. PORTER. Well, I seen it in newspapers, and recently watching news I seen it, you know, on television as well.

Mr. McDONALD. So as you look in front of you, you have three photographs, each one with a slightly different pose.

Mrs. PORTER. Well, I never compared them before. Since you ask me, you know, I have to compare.

Mr. McDONALD. As you will see, A has him holding a gun, holding the rifle in his right hand—left hand, B, the rifle in the right hand, and then, C, in the left hand again, slightly to the front.

So with these to refresh your memory, can you say, can you tell me if you took any additional pictures?

Mrs. PORTER. No, I cannot remember how many exactly. To me it looks like all of them. It looks like Lee.

Mr. McDONALD. That is correct.

Mrs. PORTER. That is the only thing I can say, but I do not remember how many pictures I was taking.

Mr. McDONALD. But since we have three in front of you, we know now that you at least took three; correct?

Mrs. PORTER. Yes.

Mr. McDONALD. Three different occasions?

Mrs. PORTER. I mean it was one occasion.

Mr. McDONALD. Right.

Mrs. PORTER. But I could take three pictures, I could take two pictures. I cannot be definite about how many.

Mr. McDONALD. Let me ask you if you can remember, was there a pose? Did Lee pose holding the rifle over his head, in two hands?

Mrs. PORTER. I don't remember that at all.

Mr. McDONALD. Mrs. Porter, I want to show you now two additional photographs labeled JFK exhibits F—the one photograph with two numbers, F-183 is the face of the photograph depicting Lee Oswald, and F-184 is the back, which has some writing on it.

If the clerk would please hand this to Mrs. Porter, and if we would for demonstration purposes display JFK exhibits F-382 and F-383.

Mrs. Porter, if you will direct your attention to the reverse side that is where my questions will be directed. The reverse side is displayed on the easel.

Have you had a chance to look at the reverse side? Do you see the phrase that is written in the upper right-hand—

Mrs. PORTER. Can I consult with my attorney?

Mr. McDONALD. Sure, please.

[Witness consults with counsel.]

Mr. McDONALD. All set?

Directing your attention to the phrase which I have been told is Russian; is that correct?

Mrs. PORTER. Yes.

Mr. McDONALD. In the upper right-hand corner of the photograph on the back, do you recognize the handwriting?

Mrs. PORTER. No, I don't. That is what I was discussing with my lawyer. We tried to find out if that was written by me. I mean as I told him, that my handwriting does change a few times a day. I do not write same way, you know, in the morning and maybe at night so it is hard for me to claim even my own handwriting, but you have certain way of writing, habit of writing certain letters, so I know for sure that I could not, I do not write certain letter that way. So at first I thought it was maybe my handwriting, but after I examine it, I know it is not.

Mr. McDONALD. Well, first of all, what does it say?

Mrs. PORTER. "For hunter of fascist, ha, ha, ha."

Mr. McDONALD. "Hunter of fascist"?

Mrs. PORTER. Yes.

Mr. McDONALD. "Ha, ha, ha."

Now if you will look closely, there is a possibility that if you look you will see the handwriting, the dark handwriting, it appears that someone might have wrote over the original handwriting.

You can see underneath.

Mrs. PORTER. I can see something, right here that looks like have been erased and copied over.

Mr. McDONALD. Or possibly someone wrote over it just to bring out a light handwriting underneath.

But nevertheless, does any of that look like your handwriting?

Mrs. PORTER. Like mine?

Mr. McDONALD. Yes.

Mrs. PORTER. No.

Mr. McDONALD. Do you recall ever writing such a phrase on the photograph?

Mrs. PORTER. No, but it would sound like me.

Mr. McDONALD. It sounds like you?

Mrs. PORTER. Yes, and at first, you know, I thought it look like my handwriting, but when I examine I do not, like letter "f," I do not print it that way, and "t." I am talking about Russian description, not English.

Mr. McDONALD. You are saying you don't print it that way now. How about in 196—

Mrs. PORTER. No, it wasn't habit.

Mr. McDONALD. So it sounds like something you would have written but you can't identify your handwriting.

Mrs. PORTER. When one letter is scratched underneath, I mean marked underneath, it is a sound in English like "s" and "h," "sha" sound. That is not necessary to put this marking on it, but it is typical of some Russians do.

Mr. McDONALD. Is it typical of the way you would have written then in 1963?

Mrs. PORTER. Pardon me?

Mr. McDONALD. Is that peculiarity—

Mrs. PORTER. Well, that would be typical for Russian to write it, but at the same time another letter—

Mr. McDONALD. Excuse me, just so everyone understands what letters we are talking about.

At this point I was referring to Ms. Jackie Hess who was pointing out the Russian letters. [Jackie, who is a staff member, speaks Russian.]

Mrs. PORTER. It is the third letter in the second word. "F A," and then another one that looks like—

Yes?

Mr. McDONALD. She speaks Russian?

Mrs. PORTER. She does?

And "t," it is not necessary to put this mark underneath as well, but it is kind of habitual, not habitual. It is a habit of some Russians to do that. But this letter "ha," in the first word after "o," this is something like maybe foreigner would try to write it, you know, to copy Russian language.

Mr. McDONALD. Do you recall ever seeing this photograph with his writing on the back?

Mrs. PORTER. No.

Mr. McDONALD. It is your testimony you don't think that is your handwriting.

Mrs. PORTER. At first look I thought it was, but then I start examine it, I don't think it is my handwriting.

Mr. McDONALD. Now if you will look in the lower left-hand corner, it says "To my friend George. From Lee Oswald." And here is a date "5," then "IV/63."

Do you recognize that handwriting?

Mrs. PORTER. No.

Mr. McDONALD. Does it look like Lee Harvey Oswald's handwriting?

Mrs. PORTER. Well, I do not have much opportunity to compare is English handwriting to this photograph, but I cannot claim it was his handwriting. I am not expert on handwriting as far as English go.

Do you have any other documents to compare his handwriting in English with this one? I mean that is up to experts.

Mr. McDONALD. Yes, I understand.

Well, did you see his handwriting in English very often?

Mrs. PORTER. Not very often, but I seen it. It was many years ago. I do not remember what his handwriting, but it wasn't big or sturdy, you know. He wrote with small letters.

Mr. McDONALD. When he wrote to you, if he wrote notes or whatever, did he write to you in Russian?

Mrs. PORTER. In Russian language, yes.

Mr. McDONALD. And how would he sign his name in Russian?

Mrs. PORTER. Alik.

Mr. McDONALD. Alik. So when you look at this handwriting in the photograph, is it your testimony that you are just not that familiar with his handwriting?

Mrs. PORTER. In English.

Mr. McDONALD. In English, I see.

Have you ever seen this photograph before?

Mrs. PORTER. This particular photograph?

Mr. McDONALD. Yes, the particular one with the writing on the back.

Mrs. PORTER. No.

Mr. McDONALD. Now in the lower right-hand corner it says "Copyright G. deM."

What does that notation mean to you?

Mrs. PORTER. Which one?

Mr. McDONALD. Where it says "Copyright."

Mrs. PORTER. I assume it was for some kind of book publications and somebody have a right in this photograph to claim it.

Mr. McDONALD. Have you ever seen that before——

Mrs. PORTER. No.

Mr. McDONALD [continuing]. That particular notation?

Mrs. PORTER, regarding all of the photographs, the different poses that we have seen, the photos you took of Lee, did you ever destroy any photograph of this nature?

Mrs. PORTER. Well, it have been brought to my attention just recently. Apparently I did. I forgot completely about it until somebody spoke about. I think I did.

Mr. McDONALD. And how many did you destroy?

Mrs. PORTER. I don't remember.

Mr. McDONALD. When did you do that?

Mrs. PORTER. After Lee was arrested.

Mr. McDONALD. Did anyone tell you to do this?

Mrs. PORTER. I don't remember. I think I was just afraid that it will be more evidence against Lee and could be against me too.

Mr. McDONALD. How did you destroy the photograph?

Mrs. PORTER. Well, I had been told I burned it. That is probably——

Mr. McDONALD. Do you remember doing that?

Mrs. PORTER. Very vaguely.

Mr. McDONALD. Was anyone with you when you did it?

Mrs. PORTER. I don't remember.

Mr. McDONALD. Do you know how many copies Lee had made of this photograph?

Mrs. PORTER. No, I don't.

Mr. McDONALD. Do you know whether he had many duplicates made?

Mrs. PORTER. I don't know. I have no idea.

Mr. McDONALD. Do you know if Lee developed these by himself, at his place of employment?

Mrs. PORTER. I think once he worked somewhere, it was possible to do it at work, I believe. I really do not know if he developed himself or he send it for.

Mr. McDONALD. Mr. Chairman, at this time I would like to move to the committee record, photographic exhibits F-378, 379, 380, F-179, F-180, F-183, F-184, F-382, F-383, and F-381.

[JFK exhibit F-179 represents F-378 and F-379; JFK exhibit F-180 represents F-380; and JFK exhibits F-382 and F-383 are representative of F-183 and F-184 respectively.]

Chairman STOKES. Without objection, they may be entered into the record at this point.

[The information follows:]



133-A



133-B

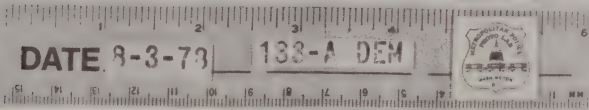
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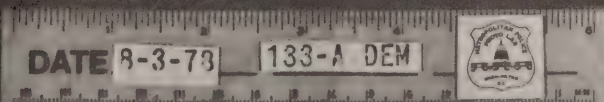
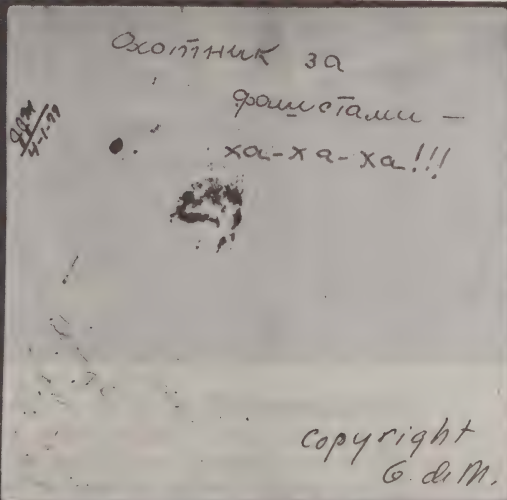
JFK EXHIBIT F-179



JFK EXHIBIT F-180



JFK EXHIBIT F-382



JFK EXHIBIT F-383



JFK EXHIBIT F-381

Mr. McDONALD. Mrs. Porter, I just have three more questions for this line of questioning, and, that is, let me direct your attention to April 1963, April 21 specifically.

This was a date on which it is in Priscilla Johnson's book and elsewhere, it has been written that you were told by Lee Oswald that Richard Nixon was coming to visit Dallas.

Mrs. PORTER. Yes.

Mr. McDONALD. Do you recall that incident?

Mrs. PORTER. Yes.

Mr. McDONALD. Tell us what happened, please?

Mrs. PORTER. Well, after the Walker incident, he give me promise that he never do it again. I see him one day, I mean I don't know the exact date, that he was putting his gun, not gun, pistol or rifle, whatever, anyway he said he is leaving, but I knew he had a weapon with him. So I told him where you leaving, and he said "Well, the Nixons is coming to town, so I am just going to look." And I said for that you didn't need—you know, why you taking all his ammunition with you, not ammunition, the gun? And so we wind up having an argument over it, and we had a fight, and he did not go.

Mr. McDONALD. All right, now the book "Marina and Lee" states that somehow you lured him into the bathroom, and then slipped out and held him in there.

Mrs. PORTER. Yes.

Mr. McDONALD. Tell us how that happened?

Mrs. PORTER. Well, it was easier to remember details when you were working so many years ago on the book than right now.

Mr. McDONALD. Try, if you could.

At this time he had the handgun on his person, and he was preparing to go out?

Mrs. PORTER. Yes, I guess.

Mr. McDONALD. And how did you get him into the bathroom?

Mrs. PORTER. Well, we wrestle or whatever you call it. You try with the time passing by not to—it is easier to forget the bad things of your life that bring memories back, so I cannot describe you the fight that we have, you know, in such scrupulous details that you wanted me to.

Mr. McDONALD. But do you recall getting him, maneuvering him into the bathroom?

Mrs. PORTER. Yes.

Mr. McDONALD. How normally—well, was he stronger than you?

Mrs. PORTER. Of course.

Mr. McDONALD. So how did you get him into the bathroom?

Mrs. PORTER. First of all, I was very angry and that maybe give me more energy and I was determined just that I am going to keep him there, and maybe he give in after a while. Maybe he was just trying to make me angry and see where he stand with me. If he really want—I mean he was much stronger than me. If he really wanted to, he could overpower me, definitely.

Mr. McDONALD. I see. And then the book says, and other testimony, that you held him in. You held the door shut.

Mrs. PORTER. The door for a while, yes.

Mr. McDONALD. Did he try to pull the door open?

Mrs. PORTER. But not for very long, yes.

Mr. McDONALD. Did he appear to be pulling very hard?

Mrs. PORTER. Well, it was hard for me to hold on to it. I don't know, if he try his best, you know, or how much power he used.

Mr. McDONALD. Is it your testimony that in your opinion if he really had wanted to get out, he would have been able to?

Mrs. PORTER. I think so.

Mr. McDONALD. Thank you, Mrs. Porter.

Mr. Chairman, I have no further questions at this point.

Chairman STOKES. Thank you, Counsel.

The Chair recognizes the gentleman from North Carolina, Mr. Preyer, for such time as he may consume.

Mr. PREYER. Thank you, Mr. Chairman.

Mrs. Porter, I would like to turn now to your life with Lee Harvey Oswald in New Orleans.

On April 24, 1963 Lee Harvey Oswald went to New Orleans, and you remained behind with Mrs. Ruth Paine in Dallas.

Mrs. PORTER. Yes.

Mr. PREYER. Why did he go to New Orleans at that time?

Mrs. PORTER. He had difficulty to handle a job right here, so he thought maybe he will have a better chance in New Orleans, and he did have relatives over there who might be able to help him find a job.

Mr. PREYER. Did the Walker shooting have anything to do with his moving to New Orleans?

Mrs. PORTER. I really don't, I do not recall right now if that was the turning point, but at least I was glad that he decided to move to New Orleans; the farther from General Walker, the better.

Mr. PREYER. Had he ever discussed moving to New Orleans before the Walker shooting?

Mrs. PORTER. I don't remember, sir.

Mr. PREYER. And I gather that you were glad that he was moving to New Orleans because you were concerned about his behavior after the Walker incident.

Mrs. PORTER. Yes.

Mr. PREYER. Did he have any friends in New Orleans?

Mrs. PORTER. Only relatives that he spoke of.

Mr. PREYER. He didn't mention anyone else living there, apart from his relatives?

Mrs. PORTER. No.

Mr. PREYER. Where was the rifle when he moved to New Orleans alone?

Mrs. PORTER. Would you please repeat the question?

Mr. PREYER. Where was the rifle?

Mrs. PORTER. He moved first. He packed all the belongings in Mrs. Paine's station wagon, and I think we took him by the bus station or he went on his own to bus station. So he left for New Orleans first, and all the belongings have been packed by Lee and left in Mrs. Paine's apartment, I mean house.

Mr. PREYER. So that he went by bus to New Orleans, but he had packed his belongings and those were sent where?

Mrs. PORTER. Usually during the moving, Lee was always doing that. He was the one who did all the packing, not me.

Mr. PREYER. So that you and Mrs. Paine later brought all of the—

Mrs. PORTER. Yes.

Mr. PREYER [continuing]. Remaining luggage?

Mrs. PORTER. Yes.

Mr. PREYER. Including the rifle.

You mentioned that when he first got the rifle, he thought, as I understood your testimony, that it was the manly thing to do, and assume that you felt that that was natural for him to have a rifle at that time, but that after the Walker incident, you stated that you realized he was capable of killing someone with it.

When he went to New Orleans by himself, and you were left in Dallas with Mrs. Paine, did it occur to you to dispose of the rifle, or the pistol, to get rid of it, so that he could do no harm, further harm with it?

Mrs. PORTER. Not really, because by that time I was afraid of Lee, and most of the time I did not, I tried not to do something to antagonize him.

Mr. PREYER. You were physically afraid?

Mrs. PORTER. Excuse me?

Mr. PREYER. Let me ask along that line, just before he went to New Orleans, what was his treatment of you?

Mrs. PORTER. Well, he was quite brittle, sometime toward me.

Mr. PREYER. That was family quarreling?

Mrs. PORTER. Quite constantly.

Mr. PREYER. Was that a factor in his moving to New Orleans?

Mrs. PORTER. Excuse me?

Mr. PREYER. Was that a possible reason that he moved to New Orleans, one of the reasons?

Mrs. PORTER. It was lots of factors involved, but I think main one was for him to look for another opportunity for a job.

Mr. PREYER. What do you think he would have done if you had gotten rid of the rifle?

Mrs. PORTER. Well, he probably would have got rid of me.

Mr. PREYER. Pardon me?

Mrs. PORTER. Well, I cannot answer this question. I don't know what he would have done.

Mr. PREYER. I understood you to say he might have gotten rid of you if you got rid of the rifle.

At this time did he talk about returning to Russia, to the Soviet Union, at all?

Mrs. PORTER. I think that came in the picture later on in New Orleans.

Mr. PREYER. When you got to New Orleans and you were both settled in the Magazine Street apartment, did you have any visitors there?

Mrs. PORTER. I don't recall except one lady with children and husband, I don't remember how many of them, one family did come to visit us, friends of Ruth Paine.

Mr. PREYER. They were not friends of Lee Harvey Oswald?

Mrs. PORTER. No. They visited only once. They never kept in touch again.

Mr. PREYER. We have asked you at various times what he said about President Kennedy or his family and other political figures. At this time in New Orleans did he have anything to say about President Kennedy or his family?

Mrs. PORTER. During the New Orleans period Mrs. Kennedy was expecting a child and Lee told me about that. He was quite concerned about her health and he informed me that she has a few miscarriages before and he was hoping nothing would happen to this baby, I think he said the baby died.

Mr. PREYER. Did he talk about the Soviet Union in this New Orleans period?

Mrs. PORTER. Yes, he did.

Mr. PREYER. What were his comments about the Soviet Union?

Mrs. PORTER. He did not talk about Soviet Union in order to compare America and Soviet Union. When Soviet Union was discussed, it was in the case that he wants me to go back. He doesn't want me around anymore. He thought that I go back or we come back to the Soviet Union.

Mr. PREYER. He talked about you going back to the Soviet Union?

Mrs. PORTER. At times it was me and sometimes it was both of us.

Mr. PREYER. Did he talk about Cuba during this period?

Mrs. PORTER. Well, he was engaged in some activities, I assume on the street, about those pamphlets, "Fair Play for Cuba."

Mr. PREYER. Did he compare Cuba with the Soviet Union at this time?

Mrs. PORTER. Yes, he did.

Mr. PREYER. What was that comparison, was it more favorable to one than the other?

Mrs. PORTER. Well, he acted like he had a choice between the Soviet Union and Cuba and he does prefer maybe to go and live in Cuba because that is something that he did not try.

Mr. PREYER. During your stay in the Magazine Street apartment in New Orleans, was Lee ever gone for long periods of time? By that I mean, say, as much as 5 days and nights consecutively?

Mrs. PORTER. No; he spent only one night in jail once and that is the only time that he was not present in the house with me.

Mr. PREYER. That is the only time he was gone overnight?

Mrs. PORTER. Yes.

Mr. PREYER. Was he friendly with your neighbors there?

Mrs. PORTER. No.

Mr. PREYER. Did he appear to have any friends at all in New Orleans?

Mrs. PORTER. No.

Mr. PREYER. You mentioned his interest in Cuba. Could you tell us just a little bit more about that and about what he might have said about Fidel Castro and why he wanted to go there?

Mrs. PORTER. Well, I knew for a long time that Fidel Castro was his hero. He was a great admirer of him, so, he was in some kind of revolutionary mood at that period of time. He thought that maybe he would be, I mean, he would be happy to work for Fidel Castro's causes or something like that.

Mr. PREYER. Now I would like to ask you about three names at this time and ask you whether you or Lee knew either of these three people.

First, is Clay Shaw. Did you remember knowing Clay Shaw?

Mrs. PORTER. I did not know Clay Shaw ever until I had to testify for Mr. Garrison in New Orleans. That is when I learned about, I mean this name.

Mr. PREYER. Do you know whether Lee knew Clay Shaw before the time of the Garrison trial?

Mrs. PORTER. I don't know about that. I had never seen or heard the name.

Mr. PREYER. Did you know Guy Bannister?

Mrs. PORTER. Who?

Mr. PREYER. Guy Bannister.

Mrs. PORTER. No.

Mr. PREYER. And you don't know whether or not Lee knew Guy Bannister?

Mrs. PORTER. I don't know, but I never heard that name either.

Mr. PREYER. Do you recall ever going to Guy Bannister's office in New Orleans with Lee?

Mrs. PORTER. No; I don't. For what purpose?

Mr. PREYER. You had no recollection of going with him?

Mrs. PORTER. No.

Mr. PREYER. Do you know David Ferrie? Does that name refresh your recollection at all?

Mrs. PORTER. Somehow the name sounds familiar right now, but I don't know where I heard it before. I cannot put the face on the name.

Mr. PREYER. You have no recollection of meeting him or seeing him, do you?

Mrs. PORTER. No.

Mr. PREYER. Did you meet Dorothy and Dutz Murret who I believe were Lee's aunt and uncle?

Mrs. PORTER. What is the first name?

Mr. PREYER. Dorothy and Dutz, D-u-t-z, I believe is his name, Dorothy and Dutz Murret?

Mrs. PORTER. I remember Aunt Lillian that lived in New Orleans. Is that the same person?

Mr. PREYER. Do you recall meeting Lee's aunt and uncle in New Orleans?

Mrs. PORTER. Yes; her name was Lillian and I forgot her husband's name.

Mr. PREYER. Did Lee's aunt and uncle ever mention the name Vofio Pecora in any conversation that you or Lee may have had with them?

Mrs. PORTER. I did not speak English at that time yet. I never heard that name, no.

Mr. PREYER. You never heard that name.

Do you recognize the name in any conversation that Lee's aunt and uncle had of Carlos Marcello?

Mrs. PORTER. No, I never heard the name.

Can I add something? If him and his uncle were talking and I would not be present in the room, I cannot say that they did not talk about it, but I never heard this name.

Mr. PREYER. When he was in New Orleans, it is known that Lee made an effort to join an anti-Castro Cuban group. He met with a man named Carlos Bringuier, if I am pronouncing it properly, and that he was arrested in a scuffle later on with Bringuier when Lee

was passing out pro-Castro literature. In other words, he appeared to be working for both sides in New Orleans, the anti-Castro and the pro-Castro. That is the background for why I ask you this question, and that is, was Lee a true Communist?

Mrs. PORTER. No, he was not.

Mr. PREYER. Could you explain that a little more? Do you believe he was sincere in his beliefs?

Mrs. PORTER. No, I don't. Like newspaper reporters call him Marxist or Communist. He was neither of those. He maybe was so-called self-proclaimed Marxist because it happened to be maybe he read the book and maybe he agrees with Carl Marx, some of the theories, but as far as belonging to the party or something like that, that is not so.

Mr. PREYER. You are saying that he was a self-proclaimed Marxist and that, as I understand it, that he had difficulty working with any, within any party?

Mrs. PORTER. He did not call himself a Marxist or say I believe in that kind of ideas.

Mr. PREYER. Do you believe he was on the pro-Castro or the anti-Castro side in New Orleans?

Mrs. PORTER. At that time, you mentioned just right now, I always thought that he was a pro-Cuban, not anti- a pro-Castro.

Mr. PREYER. Didn't he generally remain true to his views about communism, the views he held when he first went to Russia?

Mrs. PORTER. Would you please repeat the question. I did not understand you very clearly.

Mr. PREYER. I think it might be a confusing question.

Did he continue to take Communist or Socialist newspapers and literature throughout his life in this country?

Mrs. PORTER. I don't know.

Mr. PREYER. Did you notice any change in his attitude toward the Soviet Union at this time?

Mrs. PORTER. No; I don't recall that.

Mr. PREYER. Where did he work in New Orleans?

Mrs. PORTER. For some coffee company.

Mr. PREYER. Was that the Reiley Coffee Co.?

Mrs. PORTER. It could be.

Mr. PREYER. Did he talk to you about this job?

Mrs. PORTER. No, not very much.

Mr. PREYER. Did he always come home on time? You mentioned he was not away from home overnight except on one occasion.

Mrs. PORTER. He was very punctual.

Mr. PREYER. How did he get home, did anyone drop him off or did he come home on the bus?

Mrs. PORTER. I think by the bus.

Mr. PREYER. Where did he keep his rifle in New Orleans?

Mrs. PORTER. In one of the closets as well.

Mr. PREYER. You mentioned that he would, on several occasions, put on his black raincoat and take it out to practice.

Mrs. PORTER. That was in the Dallas period. It was in Dallas.

Mr. PREYER. Did he do that in New Orleans?

Mrs. PORTER. I don't recall him doing that in New Orleans.

Mr. PREYER. Do you recall when he first mentioned Cuba?

Mrs. PORTER. No; I don't, sir.

Mr. PREYER. Had he mentioned it before he went to New Orleans or was this something that he became interested in in New Orleans?

Mrs. PORTER. I think in New Orleans the word "Cuba" came up much more often than in the Dallas period.

Mr. PREYER. He distributed the Fair Play for Cuba Committee literature. Did he talk about distributing that literature with you?

Mrs. PORTER. Well, he always brought his pamphlets home. I was kind of pleased that the papers weren't as bad an occupation as playing with the rifle so I couldn't see any harm in that.

Mr. PREYER. He used the name Hidel at this time. Did you write the name Hidel on any of the literature?

Mrs. PORTER. He asked me to put some signatures with a name like that. I make joking remark about does that stand for Fidel, you know, is that a sound association, more or less.

Mr. PREYER. Did he agree that it was a variation on the name Fidel?

Mrs. PORTER. He just had a smile on, you know.

Mr. PREYER. Was that the first that anybody mentioned that Hidel was a variation on Fidel, on that occasion? In other words, did anyone tell you about that before that occasion?

Mrs. PORTER. No.

Mr. PREYER. Mr. Chairman, I think I have no further questions in this aspect of the questioning at this time.

Chairman STOKES. The Chair observes that the witness has now been under examination for approximately 3½ hours. This would probably be an appropriate place for the committee to take a recess for approximately an hour. It will be the intention of the Chair to recess our hearing until 1:30 this afternoon.

We will once again ask that everyone remain in their seats until our witness has left the room, after which we will then officially recess for 1 hour.

The witness is at this time excused.

[Whereupon, at 12:19 p.m. the committee recessed, to reconvene at 1:30 p.m.]

AFTERNOON SESSION

Chairman STOKES. The committee will come to order. We request that all persons take their seats and that at the time the witness comes into the room that no one leaves their seat.

The Chair recognizes the gentleman from North Carolina, Mr. Preyer, for further questioning.

Mr. PREYER. Mr. Chairman, I just want to straighten up one question that I asked which I think may have caused some confusion.

In connection with Lee Harvey Oswald's activities with both the pro-Castro and anti-Castro groups in New Orleans, I asked the question of the witness: Did you believe Lee Harvey Oswald was a true Communist?

I think you and I may have been thinking of that question in different terms, that you may have been thinking of it in terms of party, was he a true member of the Communist Party, and I was

thinking of it in philosophical terms, that is, was he philosophically attuned to the beliefs of the Communist Party?

To straighten that out, let me ask this: Was Lee Harvey Oswald a member of the Communist Party?

TESTIMONY OF MARINA OSWALD PORTER—Resumed

Mrs. PORTER. No, he was not to my knowledge.

Mr. PREYER. In that sense he was not a true Communist?

Mrs. PORTER. Yes.

Mr. PREYER. Did he believe in the principles and the doctrines of the Communist Party?

Mrs. PORTER. In some.

Mr. PREYER. In that sense, in the sense of the beliefs of the party, do you consider that he was a true Communist?

Mrs. PORTER. No, I don't consider him being a true Communist. From him, for example, I learned, at least he told me, that there is a difference between Communist in Soviet Union and the Communist Party right here.

Mr. PREYER. Do you think he was sincere in his political beliefs?

Mrs. PORTER. I really don't know, sir.

Mr. PREYER. Pardon me?

Mrs. PORTER. I do not exactly understand the question, was he sincere about what.

Mr. PREYER. His version of beliefs in Communism were somewhat different from the Russian doctrines?

Mrs. PORTER. That would be correct.

Mr. PREYER. Thank you, Mr. Chairman.

Chairman STOKES. The Chair recognizes counsel, Mr. McDonald.

Mr. McDONALD. Thank you, Mr. Chairman.

Mrs. Porter, directing your attention to September 1963, what happened that caused Lee Oswald to send you back to Dallas?

Mrs. PORTER. Well, at this point I was expecting my second child and Mrs. Paine was very generous to invite me to stay at her house until the baby arrived.

Mr. McDONALD. How did you arrive or how did Oswald arrive a decision to leave New Orleans? You had only moved there a few months prior. What caused him to decide to send you back to Dallas?

Mrs. PORTER. Well, by this time he came up with ideas of leaving United States. He was planning to go back to the Soviet Union or try to get visa to Cuba.

Mr. McDONALD. Did he want to go to live in Cuba?

Mrs. PORTER. I assume then he did.

Mr. McDONALD. What specifically did he say?

Mrs. PORTER. Well, he said that he go over there first and then he will send for me.

Mr. McDONALD. Go where first?

Mrs. PORTER. To Cuba.

Mr. McDONALD. Let me backtrack a minute. Did you ever have discussion with Lee Oswald about hijacking an airplane?

Mrs. PORTER. He approached me with that idea and I thought was a very ridiculous thing to come up with.

Mr. McDONALD. When did he suggest this?

Mrs. PORTER. I don't remember the exact timing.

Mr. McDONALD. While you were living in New Orleans?

Mrs. PORTER. Yes, it was in New Orleans.

Mr. McDONALD. What did he say to you?

Mrs. PORTER. Well, he asked me for my cooperation to help him to hijack a plane and the response was that I could not speak English, how can I force somebody, or anyway I just laughed at the whole matter.

Mr. McDONALD. What did he want you to do?

Mrs. PORTER. Well, it was so ridiculous it is even embarrassing to mention it right now. He told me that he would teach me what I am supposed to say, maybe hold the gun and tell the people, you know—I forgot what really I am supposed to do.

Mr. McDONALD. How did the discussion come about regarding hijacking the plane? In other words, how did he approach you and what did he say?

Mrs. PORTER. I am sorry, but I do not remember the conversation, word to word, right now.

Mr. McDONALD. Did he mention any particular airline or any particular flight?

Mrs. PORTER. No; it was just the general idea that he was toying with.

Mr. McDONALD. Did he mention where he wanted to hijack the plane to, to what country?

Mrs. PORTER. No, pardon me—to Cuba.

Mr. McDONALD. Did he mention using his rifle and his handgun?

Mrs. PORTER. Yes, he did.

Mr. McDONALD. What did he say?

Mrs. PORTER. Well, with the gun he can persuade the pilot to fly the way he will tell him to.

Mr. McDONALD. What did he want you to do?

Mrs. PORTER. Just to hold another gun or something like that, you know.

Mr. McDONALD. What did you say in response to all of this?

Mrs. PORTER. First of all, I refused and I tried to make him to see how it will look very funny to people, here I was pregnant with a child, you know, it doesn't look very scary.

Mr. McDONALD. This happened after the Walker incident, you were in New Orleans.

Mrs. PORTER. It was in New Orleans, yes, sir.

Mr. McDONALD. Did you tell anyone of his suggestion to hijack a plane?

Mrs. PORTER. Then? No.

Mr. McDONALD. You did not tell any relatives or friends?

Mrs. PORTER. No.

Mr. McDONALD. Did you think he was serious? Did you think he was going to carry out such a plan?

Mrs. PORTER. I really cannot say. I don't know.

Mr. McDONALD. When did you first learn of his planned trip to Mexico City? When did you first know about that?

Mrs. PORTER. Shortly before I left for Dallas with Ruth Paine.

Mr. McDONALD. How did you learn of this?

Mrs. PORTER. He told me about his plans to go to Mexico City and visit the Cuban Embassy over there.

Mr. McDONALD. Did he tell you how he was going to travel to Mexico City?

Mrs. PORTER. By the bus.

Mr. McDONALD. What else did he say about the trip to Mexico City?

Mrs. PORTER. He told me not to tell anybody about that.

Mr. McDONALD. To whom was he referring when he told you not to tell anyone?

Mrs. PORTER. Mrs. Paine.

Mr. McDONALD. Did he give you a reason for not telling?

Mrs. PORTER. Yes, because he said that maybe he wouldn't, you know, he would not be able to come back.

Mr. McDONALD. Come back where? To the United States?

Mrs. PORTER. Well, he told me that Mrs. Paine would not approve such an action on his part and maybe if he would not come back, she would not be helpful to me, since we really did need her financial support at that time.

Mr. McDONALD. Did he say he was going to travel there with anyone, in the company of anyone?

Mrs. PORTER. No, he did not.

Mr. McDONALD. Well, do you think he traveled with anyone? Is there anything that would lead you to believe that he traveled to Mexico City with someone else?

Mrs. PORTER. No.

Mr. McDONALD. Did he ever mention or give you any indication that perhaps he would be traveling to Mexico City with someone?

Mrs. PORTER. No.

Mr. McDONALD. Would it have been likely that he would have?

Mrs. PORTER. I don't think so because Lee was quite secretive as a person. He would not share his plans with somebody else that easily. He never mentioned afterwards, after he came back from Mexico, that he was with somebody.

Mr. McDONALD. Did he tell you the planned route that he anticipated traveling to Mexico City?

Mrs. PORTER. No, he did not.

Mr. McDONALD. Tell us precisely, then, what happened when you left New Orleans?

Mrs. PORTER. Me and my child en route went to Dallas and we left Lee at this apartment in New Orleans.

Mr. McDONALD. When was the last time you saw Lee in New Orleans?

Mrs. PORTER. Do you mean the date?

Mr. McDONALD. Yes, in relation to the day you left to go back to Dallas?

Mrs. PORTER. I don't remember the date, but Mrs. Paine came to New Orleans and she picked me up and all the belongings and things like that.

Mr. McDONALD. She carried all your belongings back?

Mrs. PORTER. In her car, yes.

Mr. McDONALD. Who helped pack or packed the belongings?

Mrs. PORTER. Lee did.

Mr. McDONALD. Did you also?

Mrs. PORTER. Maybe a very few minor baby stuff. We did not have that much.

Mr. McDONALD. How many possessions did you have? Did you have furniture?

Mrs. PORTER. No.

Mr. McDONALD. So when you talk about belongings——

Mrs. PORTER. Just the clothing and cooking utensils.

Mr. McDONALD. What did you have, boxes and suitcases?

Mrs. PORTER. Mainly boxes.

Mr. McDONALD. What about the rifle? Did you see that?

Mrs. PORTER. Well, Lee packed all the large things.

Mr. McDONALD. Do you recall seeing the rifle among the goods, among your belongings?

Mrs. PORTER. No, everything was packed and he loaded it in the car by himself.

Mr. McDONALD. Who loaded it into the car?

Mrs. PORTER. Lee did.

Mr. McDONALD. Was the rifle visible? Could you see it?

Mrs. PORTER. No.

Mr. McDONALD. Where did Lee get the money to travel to Mexico City?

Mrs. PORTER. Well, he told me that he was saving from his paycheck, putting it aside. We have very moderate spending, only are necessities.

Mr. McDONALD. Did he show you the money he had saved?

Mrs. PORTER. No.

Mr. McDONALD. What was your reaction to this whole affair, going to Mexico City, going back to Dallas?

Mrs. PORTER. I was very upset about it. I did not know if I would see Lee again. I had to be responsible for one child and I had expecting another one. So, anyway, I was quite lost. On top of everything, I could not share that with no one.

Mr. McDONALD. Could you share it with Ruth Paine?

Mrs. PORTER. No.

Mr. McDONALD. Why do you say that?

Mrs. PORTER. Well, I don't know why, but I was not approved of what Lee did, but at the same time he was my husband and I have to be somehow loyal to him.

Mr. McDONALD. When he left for Mexico City, when you both started in New Orleans, when did you expect to see him again?

Mrs. PORTER. I honestly did not expect to see him again, but he said that if his trip to the Cuban Embassy would be unsuccessful and they would not permit him to go to Cuba, then he would come back to Ruth Paine's house in Irving, Tex.

Mr. McDONALD. That he would not come back?

Mrs. PORTER. He will come back.

Mr. McDONALD. You are saying—the question was, when did you expect to see him again?

Mrs. PORTER. In the matter of a week.

Mr. McDONALD. You did expect him to come back?

Mrs. PORTER. Well, if he did, it was understood if he can go to Cuba right away, he will go, but if he can't, then he come back to Texas.

Mr. McDONALD. If he had been successful in getting to Cuba right away, what was your plan? What were you to do?

Mrs. PORTER. Well, he said that he will be in touch with me and send for me to follow him to Cuba.

Mr. McDONALD. Did he ever discuss if he were unsuccessful in getting into Cuba, that he would try to go back to the Soviet Union from Mexico City?

Mrs. PORTER. Yes, that was discussed, too.

Mr. McDONALD. At that point was he willing to go back to the Soviet Union?

Mrs. PORTER. As far as I remember right now, I think, yes.

Mr. McDONALD. At that time were you willing to go back to the Soviet Union?

Mrs. PORTER. Well, our living conditions were not very nice and Lee might not be capable of handling job for a long time and there would be more security if I go back home.

Mr. McDONALD. When he did return to Dallas, did he tell you about his experience in Mexico City?

Mrs. PORTER. In very short terms that he was unsuccessful and he talked with some people over there. They denied him a visa and he was very disappointed.

Mr. McDONALD. Did he tell you who he met with and what he did?

Mrs. PORTER. He did not mention the names.

Mr. McDONALD. Did he tell you where he went?

Mrs. PORTER. To the Cuban Consular maybe.

Mr. McDONALD. Did he ever mention to you anything about the university in Mexico City?

Mrs. PORTER. No.

Mr. McDONALD. Did he ever discuss anything of a social nature or what he did in Mexico City when he was not at the Cuban Embassy?

Mrs. PORTER. I don't recall right now.

Mr. McDONALD. Do you remember if he ever discussed attending a party or parties?

Mrs. PORTER. No, he did not.

Mr. McDONALD. In Mexico City?

Mrs. PORTER. No, he did not say that.

Mr. McDONALD. Well, when he got back, did he specifically tell you he had traveled from New Orleans to Mexico City and back again by bus? Did he specifically tell you he went by bus or are you just assuming that?

Mrs. PORTER. I really just assumed that because that is what he told me before he was leaving, that is how he would travel there by bus.

Mr. McDONALD. Did you ever see a bus ticket?

Mrs. PORTER. At that time, no.

Mr. McDONALD. Do you know if he traveled through Dallas on the way to Mexico City?

Mrs. PORTER. Excuse me?

Mr. McDONALD. Do you know if he traveled through Dallas? Did he go to Mexico City from New Orleans by way of Dallas?

Mrs. PORTER. I don't know that.

Mr. McDONALD. If he had, would you have expected him to stop or notify you if he had been in the area? Would that be likely?

Mrs. PORTER. No, I did not know about his route.

Mr. McDONALD. Did he ever mention to you the name Sylvia Odio?

Mrs. PORTER. No.

Mr. McDONALD. Mr. Chairman, I am finished with this section of questioning.

Chairman STOKES. The Chair recognizes the gentleman from North Carolina, Mr. Preyer, for such time as he may consume.

Mr. PREYER. Mrs. Porter, when Lee Harvey Oswald returned from Mexico to Dallas, he had been through what must have been an important experience in his life where he was frustrated in his attempt to return to Russia or to go to Cuba.

Did you notice any change in his personality at that time, once he returned from Mexico?

Mrs. PORTER. Somehow I felt that maybe he will be more settled now. It looked like he was quite happy to see his family when he came back and we were talking about, you know, arrival of the new baby. So I thought maybe right now he will be more responsible.

Mr. PREYER. Did his treatment of you improve? Did he behave toward you more responsibly?

Mrs. PORTER. He was not as brutal and violent after that compared to what was before.

Mr. PREYER. So that there was a change in his personality and his treatment of you when he returned and that change was on the whole to the good?

Mrs. PORTER. In some areas, yes, he improved better. At least the relationship was a little bit better.

Mr. PREYER. He eventually came to get a job at the Texas School Book Depository. Do you know how he got that job?

Mrs. PORTER. I think some friends of Mrs. Paine—I would be just speculating right now recalling back, how long it was. I mean, it was a long time ago. I think somebody helped him to get this job.

Mr. PREYER. Did he ever say anything about his job? Did he like it or did he regard it as too beneath him or what was his attitude?

Mrs. PORTER. I think he kind of likes his job, yes.

Mr. PREYER. Getting back to the other question, do you know or can you name anyone other than Mrs. Paine who may have helped him get that job?

Mrs. PORTER. I think one of her neighbors was working there, too. Maybe that is how, with his help or recommendation, that he got the job.

Mr. PREYER. That would have been Mr. Frazier?

Mrs. PORTER. That is the gentleman I am thinking of.

Mr. PREYER. Apart from Mr. Frazier, Mrs. Paine, do you know of anyone else who had something to do with him getting that job?

Mrs. PORTER. I don't know.

Mr. PREYER. When you were living with Mrs. Paine in Irving and Lee Harvey Oswald was living in Dallas at the Beckley Street roominghouse, did you ever visit him there in Dallas?

Mrs. PORTER. No.

Mr. PREYER. How did you come to find out that he had registered under an assumed name, O.H. Lee, at the rooming house at Beckley Street?

Mrs. PORTER. He left me his telephone number where he can be reached. One day I called and asked to speak with him and they say that a person by that name doesn't live there.

So when he came the following weekend to Ruth Paine's house, I asked him what it is all about. He said that he did not give his real name to the landlady because he don't want them to find out that, maybe by reading newspapers, that he was in Soviet Union and maybe it will create some difficulties.

Mr. PREYER. What was your reaction on learning that he was renting the room under an assumed name?

Mrs. PORTER. Well, by that time I was quite upset about him living such a secretive life, always making some stories or lies or covering up something, so it was not a very comfortable position to be in, at least for me it was not.

Mr. PREYER. We have asked you earlier about whether he was devious and secretive, cunning. Did he always like to be the boss or did he take orders gracefully?

Mrs. PORTER. Not very easily.

Mr. PREYER. Generally speaking, how did he get along with people?

Mrs. PORTER. He did not have very many friends. The friends in America, the one that he met, he was disappointed in them quite quickly.

Mr. PREYER. Well, I think all of these questions may perhaps be summarized this way, the questions of whether he was secretive or whether he could work with people. Can you visualize him working with an accomplice?

Mrs. PORTER. Personally, I can't.

Mr. PREYER. Could you explain briefly why you reached that conclusion?

Mrs. PORTER. Well, I am not a psychiatrist, I cannot maybe make a good judge of character, but living with a person for a few years you at least have some kind of intuition about what he might do or might not. I don't mean in every respect, but he was not a very trustworthy [sic] and open person.

So, personally, I seriously doubt that he will confide in someone.

Mr. PREYER. During October and November of 1963, and the two months just preceding the assassination, did any change occur in Lee in his conduct?

Mrs. PORTER. Two months before it? Wasn't that in Dallas?

Mr. PREYER. Yes. Was there any change different from what you have already described for us?

Mrs. PORTER. I did not see very much of Lee except only on the weekends. He seemed to me on the weekends his mood was all right.

Mr. PREYER. Could you contrast——

Mrs. PORTER. It was a more relaxed mood instead of very tense like before.

Mr. PREYER. He was in a relaxed mood rather than a tense mood?

Mrs. PORTER. Yes.

Mr. PREYER. How did that compare with his mood just before the time of the Walker shooting?

Mrs. PORTER. Excuse me? I didn't hear.

Mr. PREYER. You have indicated that he was in a more relaxed mood in October and November in Dallas. How did that compare with the mood he was in at the time immediately before the Walker shooting occurred?

Mrs. PORTER. Well, like before Walker he was more irritable and annoyed by me, but maybe just because we did not see each other or quite a long time during the week.

Mr. PREYER. Was he—pardon me, I did not mean to cut you off.

Mrs. PORTER. That is all right.

Mr. PREYER. Was there anything during October of 1963 in Dallas that occurred that was out of the ordinary that would have been a signal to you of any kind of what was to come?

Mrs. PORTER. No.

Mr. PREYER. How about in November? Was there anything out of the ordinary that occurred at that time that could have been a signal?

Mrs. PORTER. Not at all. I was thinking that finally we maybe were on our way to a better life. You know, we were together and maybe he changed for the better, you know, forever.

Mr. PREYER. Did he have any friends or acquaintances during this period in October and November?

Mrs. PORTER. Not that I know of. Besides seeing Michael Paine, Ruth's husband, occasionally, I don't know anybody he would talk with or was associated with.

Mr. PREYER. Was he friendly with Frazier, Ruth Paine's neighbor?

Mrs. PORTER. I really don't know, sir, because I see him a very few times and I did not know if they talk about anything. Anyway, I did not make any remarks about another gentleman.

Mr. PREYER. I want to ask you about some meetings you had with one person during this period. Do you know an FBI agent named James Hosty?

Mrs. PORTER. I remember the name, but I do not remember his face by now.

Mr. PREYER. How do you know him?

Mrs. PORTER. He came at Ruth Paine's house one day and he asked some questions through her about if I have been ever approached by any agents from another country and I told him no. He asked me to let him know if such an incident occurred.

Mr. PREYER. Lee was not present at the time?

Mrs. PORTER. No, he was at work.

Mr. PREYER. What was Lee's reaction to the visit?

Mrs. PORTER. When he found out about that, he was very angry again. He said that he will talk to Mr. Hosty and tell him to stop harassing me.

Mr. PREYER. Did he say anything about whether you should speak to him again if Mr. Hosty should come again?

Mrs. PORTER. Excuse me?

Mr. PREYER. Well, let me put it this way: How many times did Mr. Hosty visit you?

Mrs. PORTER. I recall only one incident, but it could be two, maybe, I don't know. That could be among the records.

Mr. PREYER. What were the visits of the FBI like from your point of view? Were you intimidated by them or frightened by them or what was your attitude about them?

Mrs. PORTER. Well, at the beginning I thought that was a routine procedure because after all, we just came from a Communist country. I really didn't see anything unusual about the Government keeping an eye on you or a Government official checking on you occasionally. It did not disturb me that much.

Mr. PREYER. But Lee's reaction to it was—well, could you just describe what his reaction was to those visits?

Mrs. PORTER. Sometimes I thought and it did cross my mind because of Lee's lack of holding a job, maybe he was angry because somebody were investigating him on the job.

Mr. PREYER. What was his opinion generally of the FBI?

Mrs. PORTER. He was not fond of them.

Mr. PREYER. Pardon me?

Mrs. PORTER. He was not very fond of them.

Mr. PREYER. Did he give them credit for causing him to lose his job in New Orleans because of the Fair Play for Cuba leaflets?

Mrs. PORTER. I think so.

Mr. PREYER. Do you know if Lee ever mentioned President Kennedy to Mr. Hosty, Agent Hosty?

Mrs. PORTER. I don't know.

Mr. PREYER. When was the last time that you saw Hosty before November 22, 1963?

Mrs. PORTER. Whatever this visit at Mrs. Paine's house, that is only once or twice maybe I see him. I think maybe he come back. I do not recall exactly that he ever came back again.

Mr. PREYER. Do you know when the last time Lee saw Hosty before November 22, 1963?

Mrs. PORTER. No, I don't remember the day.

Mr. PREYER. Did you ever see Hosty after November 22, after the assassination?

Mrs. PORTER. I do not remember Mr. Hosty's face so I cannot say if I have seen him or not. I do not recall seeing him afterwards.

Mr. PREYER. Could you tell us a little more about the visit of the FBI to you on their first and second visits? Who was present when they first visited you? Was Mrs. Paine with you, did I understand you to say?

Mrs. PORTER. Yes, Mrs. Paine was with me.

Mr. PREYER. Was anyone else with you?

Mrs. PORTER. No.

Mr. PREYER. Where was this?

Mrs. PORTER. When or where? It was at her house.

Mr. PREYER. Where was it? Did you speak in the house or out in the yard?

Mrs. PORTER. It was in the house.

Mr. PREYER. Could you tell us in a little more detail what was said at that meeting?

Mrs. PORTER. Mrs. Paine was acting as interpreter, so she told me that, as I told you before, that the man was, just wanted me to tell him if anybody did ever, or if any agent of another country will ever ask me to work for them in the future or something in that manner.

Mr. PREYER. Thanks, Mr. Chairman. I have no further questions in that area at this time.

Chairman STOKES. The Chair understands there are two votes on the floor and the committee will probably have to remain on the floor for both of those votes. The Chair at this time will recess for 15 minutes and we will ask that all persons in the room remain seated until the witness has left the room, please.

[A brief recess was taken.]

Mr. DODD. The committee will come to order.

Chairman STOKES. Mr. McDonald.

Mr. McDONALD. Thank you, Mr. Chairman.

Mrs. Porter, we are going to show you exhibits F-183 and F-184, and F-133A.

Would the clerk please hand Mrs. Porter the exhibit, and for demonstration purposes, we have on the easel JFK F-383.

My questions are going to be directed toward the back of the photograph where the handwriting is.

Mrs. PORTER. OK.

Mr. McDONALD. Mrs. Porter, if you would again direct your attention to the lower left-hand corner, where the writing says "To my friend George. From Lee Oswald."

Mrs. PORTER. Yes.

Mr. McDONALD. And I specifically call your attention to the numbering in the lower extreme left-hand corner where it has "5/IV/63."

Can you tell us, was that Lee's custom, in dating letters or whatever? Was it his custom to use that style, the style you see here, with the "5," with the Roman numeral?

Mrs. PORTER. I really cannot tell that much about——

Mr. McDONALD. Would you take a look at it?

Mrs. PORTER. No; I really don't know, sir.

Mr. McDONALD. I am sorry?

Mrs. PORTER. I do not know.

Mr. McDONALD. Have you ever seen that style of dating, where the month is designated by a Roman numeral?

Mrs. PORTER. I don't see anything so unusual about it, because isn't it everybody's preference how they want to write? You mean all the Romans are all——

Mr. McDONALD. I am sorry; will you repeat that?

Mrs. PORTER. Are you trying to say that all the numbers should be in Roman numerals?

Mr. McDONALD. No; I am not saying which way they should be. I am asking you if, as you look at those numbers, what do you see in front of you, what numbers?

Mrs. PORTER. Five—fourth month—1963.

Mr. McDONALD. IV/63.

The question is that style of designating the month with Roman numerals, is that the style of writing that you know to be characteristic of Lee Oswald?

Mrs. PORTER. I really don't know, sir.

Mr. McDONALD. You don't know?

Mrs. PORTER. No.

Mr. McDONALD. Do you ever use that style of designating a date?

Mrs. PORTER. I think in Russia I could. It is customary in Russia to do that.

Mr. McDONALD. It is customary in Russia?

Mrs. PORTER. Roman numerals for the month.

Mr. McDONALD. To designate the month?

Mrs. PORTER. Yes.

Mr. McDONALD. Do you know if Lee adopted that style?

Mrs. PORTER. I do not know really.

Mr. McDONALD. Mrs. Porter, let me direct your attention to November 21, 1963. It was a Thursday.

Mrs. PORTER. What is the date?

Mr. McDONALD. Twenty-first of November.

Where were you that day?

Mrs. PORTER. I was at Mrs. Paine's house.

Mr. McDONALD. Just for the record, where is Mrs. Paine's house?

Mrs. PORTER. In Irving, Tex.

Mr. McDONALD. Irving, Tex.

What did you do that day in Irving?

Mrs. PORTER. What day of the week was it?

Mr. McDONALD. It was a Thursday.

Mrs. PORTER. Thursday?

Just, I do not really remember, just a routine.

Mr. McDONALD. Was Lee there that morning? Was he staying with you?

Mrs. PORTER. I really don't—

Yes; probably he did. He did come Thursday.

Mr. McDONALD. When did he come on Thursday?

Mrs. PORTER. He usually come on Friday, but he came on Thursday.

Mr. McDONALD. At what part of the day did he come?

Mrs. PORTER. After work.

Mr. McDONALD. After work.

So about what time would that be?

Mrs. PORTER. Six o'clock, between 5 and 6.

Mr. McDONALD. And what do you remember exactly, what happened when he arrived?

First of all, what were you doing? What were you doing?

Mrs. PORTER. I don't remember.

Mr. McDONALD. How do you remember Lee arriving Thursday afternoon, November 21?

Mrs. PORTER. I don't remember right now, after testifying so many times for so many people, you know.

Mr. McDONALD. Do your best.

How do you remember today?

Mrs. PORTER. Well, I am sorry, I do not recall what exactly I was doing. I just know that he arrived a Thursday and it was after work.

Mr. McDONALD. Do you remember? Describe the situation when you first saw him on that afternoon. In other words, did he come through the door? Did he come through the back door, the front door? Did you see him when you were in the kitchen?

Mrs. PORTER. Sir, I do not remember.

Mr. McDONALD. You don't remember any details?

Mrs. PORTER. No.

Mr. McDONALD. What did he say? Can you remember what he said to you when he came in?

Mrs. PORTER. No; I don't remember.

Mr. McDONALD. Did he say hello?

Mrs. PORTER. Isn't it usually people say hello when they see each other? Probably.

Mr. McDONALD. Do you remember what you said to him?

Mrs. PORTER. No; I don't.

Mr. McDONALD. Were you surprised that he came on a Thursday?

Mrs. PORTER. Yes; it wasn't the usual day that he come.

Mr. McDONALD. So did you make any comment to that effect?

Mrs. PORTER. I probably have.

Mr. McDONALD. Can you remember what you said?

Mrs. PORTER. No; I don't.

Mr. McDONALD. When had you last spoken to him prior to him coming to Irving on Thursday? When had you last talked to him?

Mrs. PORTER. I don't remember, sir.

Mr. McDONALD. When was the last time you had seen him?

Mrs. PORTER. Prior to that?

Mr. McDONALD. Prior, yes.

Mrs. PORTER. He usually came every weekend, once a week.

Mr. McDONALD. Do you remember seeing him the weekend before?

Mrs. PORTER. No; one of the weekends he did not come, on Friday, I do think so, because he was angry with me or something like that.

Mr. McDONALD. How did he act when you first saw him on Thursday evening?

Mrs. PORTER. Well, I think maybe I try my best to remember. I think prior to that maybe we had disagreement or argument about something, like, him hiding the name.

Mr. McDONALD. I am sorry I didn't hear that.

Mrs. PORTER. I think it was in connection with him hiding his real name from the landlady and maybe we had argument over that. I thought maybe he came just to make up, you know.

Mr. McDONALD. What did you discuss when he came on Thursday evening, can you recall? Did you speak about that, using the fictitious name?

Mrs. PORTER. Well, we were looking forward and talking about him renting apartment for us, and I would like to be with him—it was very big imposition to live with Mrs. Paine, and I thought we just should live as a family, and like that, we discussed for us all move together.

Mr. McDONALD. You remember discussing these things that night, Thursday night?

Mrs. PORTER. Not word for word.

Mr. McDONALD. Not word for word?

Mrs. PORTER. Yes.

Mr. McDONALD. But this is what you remember, generally speaking?

Mrs. PORTER. Yes.

Mr. McDONALD. How did he appear when he came home that night?

Mrs. PORTER. Quite normal. It was nothing unusual in his appearance.

Mr. McDONALD. It was not unusual that he would come in on a Thursday?

Mrs. PORTER. No; it wasn't anything unusual his appearance. You asked me how did he look?

Mr. McDONALD. Did he seem relaxed?

Mrs. PORTER. Yes.

Mr. McDONALD. Did he seem in any way different than he usually would appear?

Mrs. PORTER. No.

Mr. McDONALD. Did he seem calm, calmer than normal?

Mrs. PORTER. Yes.

Mr. McDONALD. Can you relate or remember, did he act in any way like he did prior to the Walker incident?

Mrs. PORTER. No.

Mr. McDONALD. Please explain why you say no?

Mrs. PORTER. Well, he was more withdrawn person before, more hostile. He was more in peaceful mood right now and was willing to listen to me more so than then.

Mr. McDONALD. What do you mean "he was willing to listen"?

Mrs. PORTER. Well, like, for example, if maybe before I would say I would like for us to be together, and he would tell me to, oh, just stop dreaming, or just cut me off, or not listen at all, but now at least he was listening at what I had to say.

Mr. McDONALD. In other words, that evening you are saying he would listen to you more.

Mrs. PORTER. Yes.

Mr. McDONALD. Did you all eat dinner together, you and Lee and the Paines?

Mrs. PORTER. Yes. No, I recall that—

Was President Kennedy supposed to come Friday?

Mr. McDONALD. That is correct.

Mrs. PORTER. OK, so that was quite interesting news to me, and I was asking Lee about the President being in Dallas, and he did not make any comment about it at all. It seemed like he didn't—well, like before I said that he was more listening to me, but now when I recall back, it was quite unusual that he did not want to talk about President Kennedy being in Dallas that particular evening. That was quite peculiar.

Mr. McDONALD. What did he say? What did you say to him about President Kennedy's trip to Dallas?

Mrs. PORTER. It was quite exciting, you know, for me to talk about, but it seemed like he is changing the subject or just refused to talk about, but it wasn't in any hostile way or violent form. Just looked like he just ignored a little bit you know to talk about.

Mr. McDONALD. What did he say; do you remember?

Mrs. PORTER. No, I don't.

Mr. McDONALD. How did he dismiss talking about Kennedy? Did he say—

Mrs. PORTER. Maybe changed subject about talking about a new born baby or something like that.

Mr. McDONALD. How many times did you bring up the subject of President Kennedy coming to Dallas?

Mrs. PORTER. I don't remember how many times now.

Mr. McDONALD. Did it come up more than once?

Mrs. PORTER. Probably.

Mr. McDONALD. And what was his reaction each time?

Mrs. PORTER. He just didn't want to talk about it somehow.

Mr. McDONALD. Was anyone else talking about it? Was Ruth Paine talking about it?

Mrs. PORTER. Yes, Mrs. Paine.

Mr. McDONALD. Mrs. Paine was discussing it?

Mrs. PORTER. Yes, that is how I learned, from Mrs. Paine, that Mr. Kennedy coming, President Kennedy coming to town.

Mr. McDONALD. And what was your reaction then? Did his not wanting to talk about the upcoming visit of President Kennedy—what was your reaction to his attitude?

Mrs. PORTER. Well, I did not—if he didn't want to talk about, I mean I did not pursue further.

Mr. McDONALD. Did you at all think that evening, did you think back at all that evening before, when Lee was home, and he didn't want to talk about the upcoming Presidential visit? Did it ever cross your mind about the Walker incident?

Mrs. PORTER. No.

Mr. McDONALD. Or the Nixon incident?

Mrs. PORTER. No, no.

Mr. McDONALD. Did Lee say anything at all about President Kennedy that night?

Mrs. PORTER. No. I asked him, for example, if he know which route President Kennedy will take or something, and he said he doesn't know anything about it.

Mr. McDONALD. That is what he said, "I don't know anything about it"?

Mrs. PORTER. Yes.

Mr. McDONALD. Did you ask whether he was going to watch President Kennedy when he came through downtown Dallas?

Mrs. PORTER. I don't remember that.

Mr. McDONALD. That evening, did you know the route the President was going to take?

Mrs. PORTER. No.

Mr. McDONALD. Did Mrs. Paine know?

Mrs. PORTER. I don't know. She didn't tell me.

Mr. McDONALD. And your testimony is that Lee did not know or did not tell you?

Mrs. PORTER. He did not tell me that he know.

Mr. McDONALD. And when was all this discussion about President Kennedy taking place? Was this taking place at the dinner table?

Mrs. PORTER. No. I think maybe it was in the living room before the television set.

Mr. McDONALD. While the television was on?

Mrs. PORTER. Probably.

Mr. McDONALD. Do you recall watching any news programs that evening that were describing the—

Mrs. PORTER. Well, Mrs. Paine did speak Russian, and I did not understand English well enough to know what it was all about.

Mr. McDONALD. I am sorry. Did you say that Mrs. Paine did not speak Russian?

Mrs. PORTER. She did speak Russian.

Mr. McDONALD. She did speak Russian; OK.

When you were in the living room discussing President Kennedy's visit, was that before or after dinner?

Mrs. PORTER. I don't remember, sir.

Mr. McDONALD. What happened later on that evening? Were there any further discussions about the upcoming Presidential visit?

Mrs. PORTER. He went to bed before me, and I had some other chores to do, around the house, so when I went to bedroom he was asleep.

Mr. McDONALD. Before he went to bed, did he pay any attention to his daughter?

Mrs. PORTER. Yes.

Mr. McDONALD. His child?

Mrs. PORTER. Yes, he did. Usually on the weekends he did play with children.

Mr. McDONALD. Did he play with her that evening?

Mrs. PORTER. Yes.

Mr. McDONALD. Do you recall for how long?

Mrs. PORTER. I don't remember.

Mr. McDONALD. Did he act differently toward you that evening, comparing it with other occasions when you had seen him in the recent past?

Mrs. PORTER. Well, since I was angry at him, you know, previous weekend, I didn't want him to just—I mean I don't want to make up that easily. I want to, you know, to teach him a lesson, not to do this any more.

Mr. McDONALD. Now when you moved in with Ruth Paine, where were your belongings?

Mrs. PORTER. In Mrs. Paine's house, in the garage mostly.

Mr. McDONALD. And how much space did they occupy in the garage?

Mrs. PORTER. I don't remember, but you have to go in between boxes, you know, in the garage.

Mr. McDONALD. Could you get an automobile in the garage at the same time?

Mrs. PORTER. I don't remember.

Mr. McDONALD. And do you recall going in that garage from time to time when you lived with the Paines?

Mrs. PORTER. Yes.

Mr. McDONALD. And do you recall seeing where his rifle was located? In other words, did you know where it was?

Mrs. PORTER. Yes, I did.

Mr. McDONALD. Where was it?

Mrs. PORTER. In the garage.

Mr. McDONALD. Where in the garage?

Mrs. PORTER. I think it was wrapped in a blanket.

Mr. McDONALD. And where was this blanket? In other words, was it in plain view? Was it in a corner?

Mrs. PORTER. No, it was between boxes I think. I mean that is how I remember it now.

Mr. McDONALD. Did you ever see it unwrapped? Did you ever see the gun when you were at Ruth Paine's? Did you ever see the rifle taken outside of the blanket?

Mrs. PORTER. No.

Mr. McDONALD. Was it ever exposed?

Mrs. PORTER. No.

Mr. McDONALD. On the night of the 21st, did you see Lee go into the garage?

Mrs. PORTER. No.

Mr. McDONALD. Did you see him go into the backyard at all?

Mrs. PORTER. I don't remember.

Mr. McDONALD. When he was playing or paying attention to the child, what were you doing at that time?

Mrs. PORTER. I don't remember. I am sorry about that.

Mr. McDONALD. Would it be your usual custom to be playing with the child with him?

Mrs. PORTER. Excuse me?

Mr. McDONALD. Would you usually play together with the child?

Mrs. PORTER. No. Usually I be busy doing something. But, I have two children, you know, so when you take care of one——

Mr. McDONALD. Do you remember at all Lee going out into the backyard or the side yard toward the garage?

Mrs. PORTER. I don't remember that.

Mr. McDONALD. You just testified when you went to bed or got to bed he was asleep.

Mrs. PORTER. Yes.

Mr. McDONALD. In the book "Marina and Lee," you are quoted as saying in that that at one point in the morning, 3 a.m. I think it is, that there was an incident where he kicked you vehemently, I think the word is in the book.

Mrs. PORTER. Pardon me?

Mr. McDONALD. He kicked you very forcefully, pushed your leg, or something to that effect.

Mrs. PORTER. Yes.

Mr. McDONALD. Would you comment on that?

Mrs. PORTER. No, I meant, I do not remember that incident right now.

Mr. McDONALD. But it is your testimony that when you got to bed that night he was asleep, or he seemed asleep?

Mrs. PORTER. Yes.

Mr. McDONALD. Are you sure he was asleep?

Mrs. PORTER. Well, I assumed that he was. He wasn't awake.

Mr. McDONALD. What happened the next morning?

Mrs. PORTER. I am sorry, it is very hard for me to remember right now details, so whatever I told Priscilla, that was the truth. My memory was much fresher then, and you can take the statements in the book as a true fact.

Mr. McDONALD. Tell us what happened the morning, Friday morning, November 22.

What happened at dawn or when you woke up?

Mrs. PORTER. Well, to the best of my recollection right now, I think I wanted to get up and maybe fix cup of coffee for Lee or something. He told me not to get up. He'll do it himself.

Mr. McDONALD. How did he look? How did he appear in the morning?

Mrs. PORTER. As usual.

Mr. McDONALD. He got dressed for work, in other words?

Mrs. PORTER. Yes.

Mr. McDONALD. Did he appear at all to be nervous?

Mrs. PORTER. No.

Mr. McDONALD. Agitated or excited?

Mrs. PORTER. No. It is nothing in his behavior that I would be suspicious of something.

Mr. McDONALD. Are you saying that he acted in a normal fashion?

Mrs. PORTER. As far as I remember right now, yes.

Mr. McDONALD. Did he at all resemble the way he appeared before the Walker incident?

Mrs. PORTER. No.

Mr. McDONALD. In other words, your testimony today is that his demeanor at the time of November 22 was different. He was calm. He was acting normally.

Mrs. PORTER. Yes.

Mr. McDONALD. What did he say to you as he went to work?

Mrs. PORTER. I am sorry, I do not remember. Goodbye, probably.

Mr. McDONALD. And where were you when he went out to work that morning?

Mrs. PORTER. In the bedroom.

Mr. McDONALD. You were still in bed?

Mrs. PORTER. Yes.

Mr. McDONALD. Was it dark in the room?

Mrs. PORTER. I think so. It was very early.

Mr. McDONALD. And you don't recall what he said when he walked out?

Mrs. PORTER. No.

Mr. McDONALD. At that time did you detect anything out of the ordinary?

Mrs. PORTER. No.

Mr. McDONALD. Thank you.

I have no further questions, Mr. Chairman.

Chairman STOKES. Thank you, Counsel.

The procedure at this point will be as follows: The Chair will recognize the gentleman from North Carolina, Mr. Preyer, for such time as he may consume, after which the committee will operate under the 5-minute rule.

The Chair recognizes the gentleman from North Carolina, Mr. Preyer.

Mr. PREYER. Mrs. Porter, when did you first learn that President Kennedy had been assassinated?

Mrs. PORTER. I was watching television, and all of a sudden everything went blurry, and I did not know what happened, and Mrs. Paine explained to me, she told me that somebody shot President Kennedy.

Mr. PREYER. Did you continue to watch television with Mrs. Paine to learn more news about it?

Mrs. PORTER. Yes.

Mr. PREYER. What was your reaction to the news?

Mrs. PORTER. Well, it was horrible, shocking news.

Mr. PREYER. Did the TV, as you listened to it, say that the shots had come, were believed to have come from the Texas Book Depository?

Mrs. PORTER. Well, I did not understand English, but I think Mrs. Paine told me that shots came from school book depository.

Mr. PREYER. Did you have any intuitive feelings about the shooting at that moment?

Mrs. PORTER. Well, for instance, my heart kind of stopped or ached. I don't know how to describe the feeling. I felt very uneasy and uncomfortable, and I was afraid that maybe my face will betray me, so I went outside. I didn't want Ruth Paine to see. The blood was rushing to my cheeks.

Mr. PREYER. You were feeling uneasy and uncomfortable because you thought Lee might be involved?

Mrs. PORTER. Well, for an instant it did cross my mind. I thought to myself I hope it wasn't Lee.

Mr. PREYER. When did you first learn of Lee's involvement?

Mrs. PORTER. When policemen came at Ruth Paine's house and told me through her that Lee was arrested.

Mr. PREYER. Did you go to the police station with the policemen?

Mrs. PORTER. Yes, I think so. All this day is not very clear in my memory, because after that everything went very fuzzy.

Mr. PREYER. But you did see Lee at the police station not long after the assassination, I believe.

Mrs. PORTER. I don't remember.

Was that the same day or the next day? I do not recall.

Mr. PREYER. When you saw him there, did you speak to him through a glass window?

Mrs. PORTER. Yes, sir.

Mr. PREYER. What did you talk about?

Mrs. PORTER. Well, it just seemed to me that he was avoiding to discuss with me the assassination at all. He just talk about the children mainly.

Mr. PREYER. Did he give you any signals indicating you should avoid talking about the assassination?

Mrs. PORTER. Yes; he did, because it was a glass between us, and there was a telephone receiver that you are supposed to talk through, and he motioned with his eyes on the telephone, and I understood that maybe he meant that it was, you know, that it was taped or something, so be careful what you say. So he just told me not to worry about anything. Everything will be all right.

Mr. PREYER. So that he signaled with his eyes at the telephone——

Mrs. PORTER. Yes.

Mr. PREYER [continuing]. Indicating to you be careful what you say. Was his response calm or was it excited?

Mrs. PORTER. What kind of response?

Mr. PREYER. Well, when you met him at the police station, was his attitude calm or was he excited or——

Mrs. PORTER. He looked scared to me.

Mr. PREYER. He looked scared.

Was he protesting his innocence, for example?

Mrs. PORTER. He never told me that. No; he did not tell me in exact words that "I am innocent."

Mr. PREYER. If he had been innocent, do you think he would have protested his innocence to you or that he would have complained about his rights being violated? Would that have been typical of him?

Mrs. PORTER. Well, that I really cannot say, sir. I don't know.

Mr. PREYER. While he was in jail, did he ever call you on the telephone?

Mrs. PORTER. I don't remember.

Mr. PREYER. Did he ever at any time give you any hint as to why he did it?

Mrs. PORTER. No.

Mr. PREYER. Or anything as to whether he had any accomplices, anyone assisting him?

Mrs. PORTER. No.

Mr. PREYER. How were you treated by the FBI after the assassination?

Mrs. PORTER. Well, they were quite strict with me.

Mr. PREYER. How about the Secret Service?

Mrs. PORTER. They were the nice guys, I guess.

Mr. PREYER. So is it fair to say your attitude was more favorable toward the Secret Service than toward the FBI after the assassination?

Mrs. PORTER. That is correct.

Mr. PREYER. Were you ever contacted by any foreign government after the assassination?

Mrs. PORTER. No.

Mr. PREYER. Were you ever contacted by anyone who, in effect, supported Lee Harvey Oswald's act in assassinating the President?

Mrs. PORTER. No.

Mr. PREYER. Never, at any time?

Mrs. PORTER. No.

Mr. PREYER. Did you know Officer Tippit?

Mrs. PORTER. No.

Mr. PREYER. Or did you know Jack Ruby?

Mrs. PORTER. No.

Mr. PREYER. Do you know whether Lee knew Officer Tippit?

Mrs. PORTER. I don't know about that.

Mr. PREYER. How about Jack Ruby?

Mrs. PORTER. Not to my knowledge.

Mr. PREYER. Mrs. Porter, with the benefit of 15 years hindsight, living with the assassination all of these years, and knowing Harvey Oswald probably better than anyone else ever knew him, can you tell this committee and the American public if it is your opinion that Lee Harvey Oswald killed the President?

Mrs. PORTER. Well, I don't know if I am qualified to make statement like that, because I knew one side of Lee, but I do not have qualification to make a judgment of his whole character and put all the pieces together.

Mr. PREYER. So you do not wish to give an opinion on that subject.

Mrs. PORTER. Well, I don't think I am in position or qualified to give opinion like that.

Mr. PREYER. Let me ask one final question in this field.

If he did it, do you have an opinion as to why he would have done it?

Mrs. PORTER. No, I don't.

Mr. PREYER. Mr. Chairman, I at this time wanted to review some of the areas which we have already gone over, and as you indicated, I think some of the other members, all of the other members, will wish to participate in that too, areas which we have already covered today, but on which I would like to ask Mrs. Porter about some earlier statements which she has made which might appear to be inconsistent with some statements which she has made today. I understand we will proceed until 4 o'clock today?

Chairman STOKES. The gentleman is correct.

Mr. PREYER. All right, then if the Chair permits, I will begin with a few of those instances at this time.

Chairman STOKES. The gentleman is recognized.

Mr. PREYER. First, Mrs. Porter, I understand that at the time you testified before the Warren Commission, you could not speak or understand English very well.

Mrs. PORTER. That is correct.

Mr. PREYER. You did not use it in the course of your everyday activities, the English language.

Mrs. PORTER. I testified before Warren Commission more than once, and they always provide interpreter for me.

Mr. PREYER. So that you did need a translator when you testified before the Warren Commission.

Mrs. PORTER. That is correct.

Mr. PREYER. When did you learn to speak English so that you could use it in the course of your everyday activities?

Mrs. PORTER. Well, it did come gradually. I cannot say it took 5 months or 6 months or 1 year. It was a gradual learning process.

Mr. PREYER. Could you make some general estimate of, say, within the last 3 years?

Mrs. PORTER. Well, maybe like a year and a half after assassination I could communicate maybe 3 or 4 months after November 22.

Mr. PREYER. First, I would like to ask you a few questions about the Komsomol, Communist Youth Movement, which you testified to here today.

You testified this morning, as I understand, that you were expelled from it primarily because you married a foreigner. That seemed to be the main reason. Back in December 3, 1963, shortly after the assassination, you talked with the FBI about this. You told them you were expelled from it for failing to pick up your membership card. You did not mention your marriage to Lee, as I recall.

Why did you not mention your marriage at that time?

Mrs. PORTER. I do not understand your question. Why I did not what?

Mr. PREYER. Today—

Mrs. PORTER. Oh, I see I give you a different reason today for it. Well, I assume that the reason for me to be expelled from organization was for that reason because I was under pressure before. But their excuse for expelling me, they did not tell me directly well, because you married to a foreigner, that is why we are expelling

you. They said because I did not, I was not a good member, I did not pay my dues on time or whatever, so it was on the paper a legitimate excuse for them.

Mr. PREYER. You testified today, I believe, that you did pay your dues regularly to the Komsomol and you told the Warren Commission you paid your dues regularly. Earlier you mentioned in a deposition that you were discharged from the Komsomol because you did not pay your dues. Did you pay your dues?

Mrs. PORTER. Well, sometimes I usually did, you know, at the beginning, but then at the end of it, if I missed a month, you know, or something like that. What I am trying to say, that my involvement with the organization was only the things I did, I paid the tuitions or whatever few cents a month or something like that.

Well, on this meeting when they discharged me they discussed my character and it looked like I wasn't good enough. And I was such an irresponsible member of the organization.

Excuse me. May I add also that Lee frightened me as well. He thought that if the authorities ever find out that I am a member of such an organization, I could be prosecuted in this country, too. So maybe at the beginning when the FBI were questioning me, I was still afraid that it might cause some inconveniences or departure out of this country.

Mr. PREYER. Let me turn to one other area which is Lee's trip to Mexico. You have told us today that you knew of Lee's intended trip to Mexico City when you were living in New Orleans, and I believe you said that also to the Warren Commission.

Why did you not give the FBI this information when they interviewed you back in November 29, 1963, approximately a week after the assassination?

Mrs. PORTER. At that time I did not really have the country to go to. My husband committed a horrible crime. I did not know if I would be prosecuted for that just as well, being his wife, because I did not know the rules and regulations and law of this country at all.

I thought that if I tell them that I knew about Mexico, I would be responsible just as well for what he did.

Mr. PREYER. As late as January 22, 1964, you were still denying that you knew Lee was going to Mexico when you lived in New Orleans, but about 10 days after that you testified before the Warren Commission that you did know of the trip. If you were trying to protect Lee in December by not telling of the Mexican trip——

Mrs. PORTER. I tried to protect myself as well, sir.

Mr. PREYER. Protecting yourself?

Mrs. PORTER. To tell you the truth, I did not like the FBI. I did not like the treatment. I am sorry to say that, I was frightened and I sometimes was maybe deliberately difficult in giving information to the FBI.

Mr. PREYER. Were you pressured by anyone to change your testimony between those dates? That is just a 10-day period there. Did the FBI or the Secret Service or anyone suggest to you to change your testimony there?

Mrs. PORTER. Well, I don't remember.

Mr. PREYER. Would you not have remembered if one of them——

Mrs. PORTER. I think it was—well, I did not want to talk about the FBI, but I do believe that one of the FBI agents, he brought something that looks like it came from Mexico and, little by little in the questioning, I had to confess that I did know. Maybe that is what it was. I don't remember right now.

Mr. PREYER. As I understand your testimony, you are saying now that you did know of the trip to Mexico and you gave your earlier statements to the FBI to protect Lee and to protect yourself?

Mrs. PORTER. That is correct.

Mr. PREYER. We talked earlier today about the use of the alias Alik Hidel by Lee in New Orleans. I think you also told the Warren Commission that Lee used Hidel and that that was just an altered form of the name Fidel, Fidel Castro.

Why did you tell the Secret Service when they interviewed you 10 days after the assassination that to your knowledge Lee had never used the name Alik Hidel?

Mrs. PORTER. I don't remember this incident at all.

Mr. PREYER. I am sorry, I didn't understand you.

Mrs. PORTER. Ten days after assassination, you said?

Mr. PREYER. Yes; approximately 10 days afterwards you apparently indicated to the Secret Service that Alik or that Lee had never used the name Alik Hidel.

Mrs. PORTER. Well, my emotional conditions were not very normal at the time, you know, after the assassination, so I could maybe remember something one day and forget the next one or be frightened or whatever the circumstances were. But when I gave testimony to the Warren Commission, it was all the truth.

Mr. PREYER. Shifting to the question of the rifle and the pistol, you have told us that you didn't like rifles and guns. When was the first time you saw the pistol that Lee had?

Mrs. PORTER. I really do not remember what month or the day it was and when I learned about the existence of it.

Mr. PREYER. Was it on the occasion of the photograph or was it on the occasion of the Nixon incident that you mentioned? Which was the first time that you knew he had a pistol?

Mrs. PORTER. Well, I cannot right now compare when it was, when the picture was taken, or when the Nixon incident was, before or after.

Mr. PREYER. I think the picture was taken in March and the Nixon photograph was in April. The picture must have been the first time. If you noticed, he had the pistol at that time.

Mrs. PORTER. This would be a more logical way of remembering, probably when he was taking the picture, because I really do not know right now where the pistol come from.

Mr. PREYER. Did you make any comment to Lee when the picture was being taken about the rifle and the pistol?

Mrs. PORTER. Well, I probably did.

Mr. PREYER. Did you comment on both of them, the pistol and the rifle, do you recall?

Mrs. PORTER. I don't recall, but it is very possible that I did.

Mr. PREYER. Well, if you saw that Nixon or if you saw the pistol during the Nixon incident, why did you tell the Secret Service at that time that you had never seen Lee with a pistol?

Mrs. PORTER. Well, maybe at the time they questioned me I did not remember. Maybe I tried to protect myself from something, I do not know.

Mr. PREYER. You did know that Lee had killed Officer Tippit with the pistol at that time, did you not, so you knew he had used the pistol before?

Mrs. PORTER. Well, that is probably correct. I do not remember when I find out about Officer Tippit.

Mr. PREYER. Another area of some apparently contradictory statements is in the area of ammunition. You told us today that Lee practiced with a rifle and that you saw ammunition lying around and you told that to the Warren Commission, also.

Why did you tell the FBI on December 17, 1963, again shortly after the assassination, that you had never seen ammunition around the house?

Mrs. PORTER. For one simple reason, I was frightened of my well-being in this country.

Mr. PREYER. Would you like to make any general statement at this time about the earlier inconsistencies in your testimony? You have told us that they were, as I understand it, were due at first to your desire to protect Lee, perhaps to your fear of the FBI, perhaps to your fear of being a foreigner in a strange country.

Is that basically correct? Is there any further general explanation you would like to give of why there are these inconsistencies in your earlier testimony?

Mrs. PORTER. There was quite mixed emotions. I was very grateful to Mrs. Ruth Paine who gave us shelter when I needed it. I was very embarrassed about the fact that if she finds out that I knew about all this, the trips to Mexico and the rifle and things like that, it was very embarrassing for me to admit to myself that she has been used, you know, in a way. It would be against her religion and her beliefs and it was insulting for me to do such a thing to a friend. That was one part of it.

The fear for not being able, I mean for being prosecuted by law for knowing about those things, that was there, too.

Mr. PREYER. It has been alleged by some critics that the reason your story changed was not so much because of the reasons you have given or because of your own beliefs, but rather because the FBI and the Secret Service put pressure on you to incriminate Lee immediately after the assassination.

While the FBI and the Secret Service did question you, was there ever any pressure from them for you to give evidence that would incriminate Lee, evidence that you believed to be false?

Mrs. PORTER. No; that is not correct. I maybe like Secret Service and dislike FBI, but both of those people were working for one cause, to find the truth. The Secret Service did question in a more gentle way and I responded to that much better. The FBI sometimes were a little bit too brutal and my response was not as cooperative. Maybe in some little way I want to punish them for it, not to give them information or correct information but it was not for the reasons I have been accused of doing it. It was human mistakes, human error, in my own character.

I do apologize for it, but it is not because they tried to twist my arm and told me what should I tell and what not to tell. That is not true.

Mr. PREYER. Thank you, Mrs. Porter. I have no further questions at this time, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The committee at this time will operate under the 5 minute rule. I might say to the members that we have to conclude today's hearing in this room by 4 p.m. Obviously, we will have to continue the hearing as it relates to this witness on tomorrow. We will proceed as far as we can this afternoon.

Mrs. Porter, throughout your testimony here today you have indicated that Lee Harvey Oswald always spoke of liking President Kennedy; is that correct?

Mrs. PORTER. That is true, sir.

Chairman STOKES. You never heard him speak of him in a hostile manner?

Mrs. PORTER. No.

Chairman STOKES. Then is it consistent, in your opinion, then, that a man who spoke of President Kennedy as he did also was accused of having killed the President?

Mrs. PORTER. That is very hard for me to comprehend.

Chairman STOKES. Now, have you on occasions indicated that you thought perhaps he was not shooting at President Kennedy but was trying to hit someone else?

Mrs. PORTER. It was my aloud speculation which doesn't have any foundation for it because it was very hard for me to even think about a person who could like someone can do such a thing to him. The reason I mentioned Mr. Connally, I mentioned his name only because Lee was corresponding at one time in his life with Governor Connally.

Chairman STOKES. Can you tell us a little bit more about that? What had he in effect said about Governor Connally?

Mrs. PORTER. Not very much. I just learned from him when we were in Russia that he did write Governor Connally for some legal matter. I think about his coming back to the United States or have something to do with the service, I do not recall what it was. But then he received a letter from Governor Connally. Lee pointed out the envelope with, instead of a stamp, it was Mr. Connally's picture on it and he explained to me that is how people who want to be elected, it is a form of advertisement before an election or something like that.

Chairman STOKES. Did this have something to do with the type of discharge that he had which he was dissatisfied with?

Mrs. PORTER. Well, at the time I thought it was just a matter of getting entrance visa or permission to enter United States again. That is what I thought at the time. Anyway, I heard the name in the Soviet Union, Mr. Connally. I thought maybe he was angry somehow at that man.

Chairman STOKES. I am sorry?

Mrs. PORTER. I thought maybe for some reason he was angry at that man.

Chairman STOKES. In expressing that anger, do you recall what said?

Mrs. PORTER. No, I did not say that he was expressing anger. Immaturely [sic] I tried to make some kind of logical explanation for why all this happened. It was hard for me to believe that he really was aiming at Mr. Kennedy.

Chairman STOKES. Were there several occasions in which he expressed himself regarding Governor Connally?

Mrs. PORTER. I don't remember right now.

Chairman STOKES. Can you recall having given testimony to someone regarding his attitude toward Governor Connally?

Mrs. PORTER. I had so many testimonies, I do not recall that. I don't remember.

Chairman STOKES. So at this time you have no recollection of that?

Mrs. PORTER. No.

Chairman STOKES. You mentioned to us that when the two of you arrived in New York, that Lee Harvey Oswald was somewhat disappointed because the press was not there; is that correct?

Mrs. PORTER. I don't remember. It was in New York or in Dallas. Maybe when we got off the plane in Dallas, maybe that was when he expressed his disappointment.

Chairman STOKES. Why did he indicate that he was disappointed that the press was not there?

Mrs. PORTER. Well, he told me that it was in the news when he left the United States, so now probably the news media will be waiting for him over there just as well. So he told me to get prepared for it and nobody was there.

Chairman STOKES. So when no one was there, what did he say?

Mrs. PORTER. Well, it is not what he said but maybe just an expression on his face maybe indicated disappointment you know because there was no one there.

Chairman STOKES. So then we are to understand that what he manifested was an expression or an attitude, not necessarily did he say anything or verbalize anything?

Mrs. PORTER. Well, I do not recall right now, that is correct. But somehow I did learn about that, he was, one way or another expressed this kind of statement.

Chairman STOKES. Were there other occasions that he indicated he felt he ought to get attention from the press?

Mrs. PORTER. No, I don't remember that. I don't remember other occasions.

Chairman STOKES. You said to Judge Preyer earlier today that Lee Harvey Oswald very much admired President Fidel Castro. Then you indicated right behind that that at about that time he appeared to be in a revolutionary mood. Do you recall that?

Mrs. PORTER. Yes.

Chairman STOKES. Tell us what you meant by that?

Mrs. PORTER. Well, Fidel Castro, he was a new, how you call it president of the new republic, and he was the leader of the revolution in Cuba and when Lee obtained a rifle, I guess that is somehow in my mind associated with some kind of revolution.

Chairman STOKES. Did he then often talk about revolution?

Mrs. PORTER. Not in this country.

Chairman STOKES. Not in this country?

Mrs. PORTER. No.

Chairman STOKES. Where did he talk about revolution?

Mrs. PORTER. He talked about the revolution in Cuba, that already—

Chairman STOKES. Did he talk about it often?

Mrs. PORTER. Yes.

Chairman STOKES. Can you recall what he said about it?

Mrs. PORTER. No; I don't remember the details right now.

Chairman STOKES. But he did talk about it often?

Mrs. PORTER. Yes.

Chairman STOKES. My time has expired.

The gentleman from Ohio, Mr. Devine.

Mr. DEVINE. Thank you, Mr. Chairman.

Mrs. Porter, there won't necessarily be any continuity in my questions. I am going to question you about various things that have occurred to me during your previous testimony. I am not attempting to confuse you in any way.

First of all I would ask, you are in reasonably good health?

Mrs. PORTER. I am OK.

Mr. DEVINE. I notice you are in a habit of putting your left arm behind you. Are you uncomfortable in some way?

Mrs. PORTER. It is just an uncomfortable chair that the back hurts when you try to lean forward.

Mr. DEVINE. We will try to remedy that.

Are you now a citizen of this country?

Mrs. PORTER. No; I am not.

Mr. DEVINE. Has anyone during the course of these past 15 years threatened to deport you if you did not answer in a manner that they thought you should?

Mrs. PORTER. No; they have not.

Mr. DEVINE. They have not, you have had no such threats.

Mrs. PORTER. No.

Mr. DEVINE. Going to another matter, when Lee obtained the job at the Texas School Book Depository, did he seek the job at that place or was it just happenstance as far as you know that he obtained a job there?

Mrs. PORTER. I don't understand your question, sir.

Mr. DEVINE. Did he seek a job at the Texas Book Depository specifically? Is that where he wanted to find a job?

Mrs. PORTER. I don't think so. He was looking for a job at the time.

Mr. DEVINE. As far as you know, that job just came up then and he didn't seek that particular location as far as you know?

Mrs. PORTER. No, no.

Mr. DEVINE. Did he mention to you when the Kennedy visit was discussed that he had a box seat for the motorcade in his present employment?

Mrs. PORTER. No.

Mr. DEVINE. He never mentioned that?

Mrs. PORTER. No.

Mr. DEVINE. When is the last time you spoke to your husband?

Mrs. PORTER. In jail after he was arrested.

Mr. DEVINE. Through the glass?

Mrs. PORTER. Yes.

Mr. DEVINE. You were asked, I think, by Judge Preyer whether or not you received a telephone call from him and you said you don't remember.

Mrs. PORTER. I don't remember.

Mr. DEVINE. Now wouldn't you actually remember if that happened to be the last time you spoke to him while he was alive?

Mrs. PORTER. It doesn't ring a bell. I don't recall. In my memory the last time I spoke to Lee was when he was in jail.

Mr. DEVINE. But you have no recollection of that?

Mrs. PORTER. No.

Mr. DEVINE. Did he ever talk to you about the shooting at General Walker?

Mrs. PORTER. Afterward, yes. Not very much, but only what I told you, that is all I remember.

Mr. DEVINE. This was afterward, of course, but what did he say about it, that he had missed or what?

Mrs. PORTER. Well, we had quite long discussions and if I go into details right now, which I do not remember, but the general idea was that he didn't think, I mean he thought he was really doing good service to a country by eliminating a person like Mr. Walker.

Mr. DEVINE. Did you happen to be watching television at the time your husband was shot by Jack Ruby?

Mrs. PORTER. No.

Mr. DEVINE. You did not see that incident?

Mrs. PORTER. No.

Mr. DEVINE. Was Jack Ruby ever at Mrs. Paine's home?

Mrs. PORTER. No.

Mr. DEVINE. Had you ever met him on any previous occasion?

Mrs. PORTER. Never.

Mr. DEVINE. You never were in contact with him after the incident?

Mrs. PORTER. No.

Mr. DEVINE. The morning that Lee left, he told you to stay in bed, that he would fix his own coffee. Did you see him leave?

Mrs. PORTER. You mean the driveway or the room?

Mr. DEVINE. That morning at 5 or 6?

Mrs. PORTER. No; I stayed in bed as far as I recall right now. I did not walk to the door.

Mr. DEVINE. You did not see him go down the street to pick up his ride?

Mrs. PORTER. No.

Mr. DEVINE. You then would not know whether he had anything with him?

Mrs. PORTER. I have no idea.

Mr. DEVINE. You didn't see him carrying the blanket covered gun?

Mrs. PORTER. No; I did not.

Mr. DEVINE. Did he say anything to you about having a venetian blind or a blind in the blanket?

Mrs. PORTER. No. No comment about that at all.

Mr. DEVINE. You said that when you first heard about the assassination, you were watching the television, I believe with Mrs. Paine, and you said the thought crossed your mind, and I think your exact words were, "I hope it was not Lee."

Mrs. PORTER. Yes.

Mr. DEVINE. What caused that to come to your mind? Had this been bothering you?

Mrs. PORTER. What, all the time or ever since or what time?

Mr. DEVINE. Had it occurred to you previously that he might do something like this?

Mrs. PORTER. No; when they mentioned School Book Depository, knew that Lee was working over there. I don't know, a sixth sense or something like that. Although I just felt for some unknown reason—something just struck me.

Mr. DEVINE. The television revealed that the case occurred in front of the place where Lee worked. Did that cause you perhaps to believe that he might be involved?

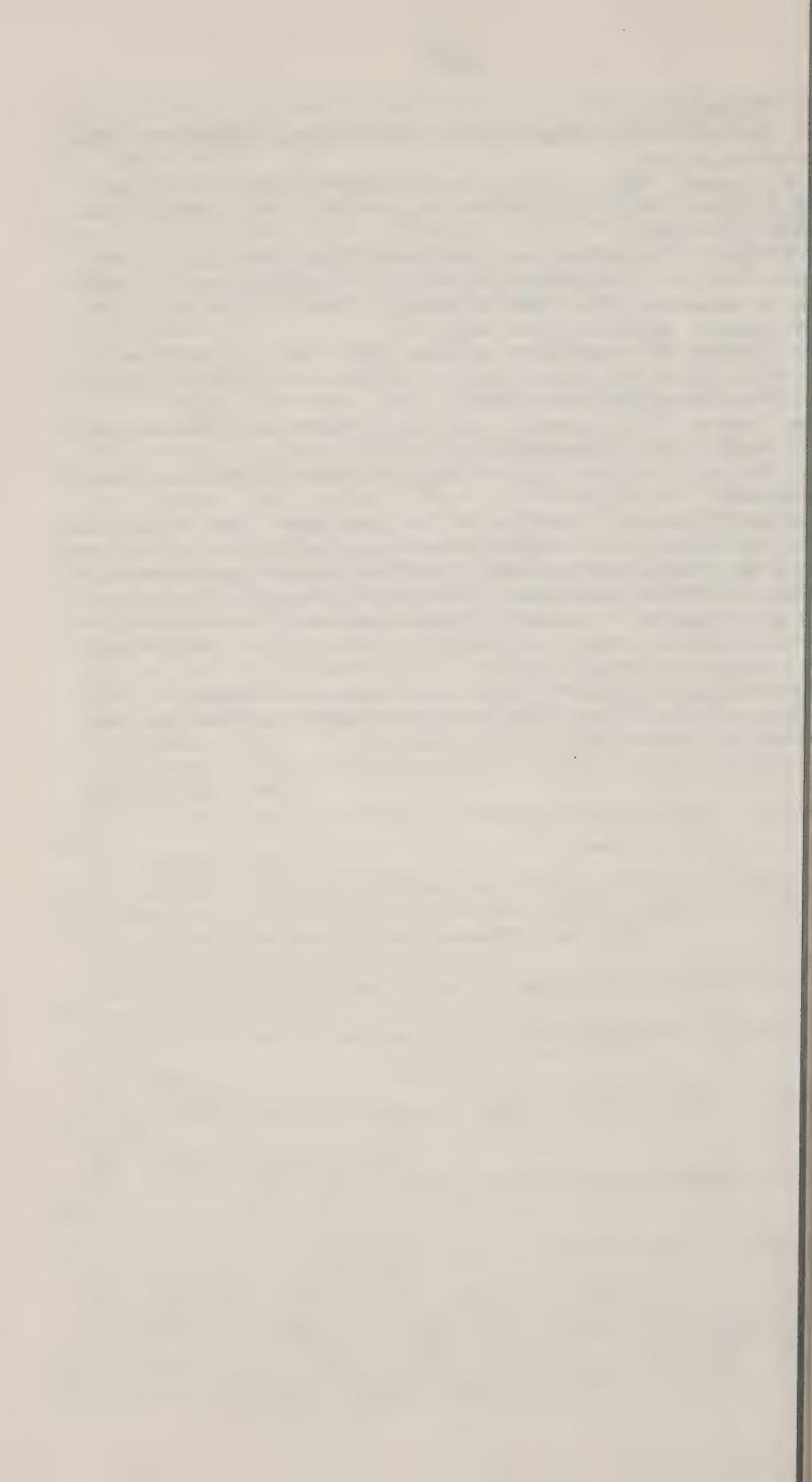
Mrs. PORTER. Well, knowing about the incident with Walker, one would think, I hope it is not again.

Mr. DEVINE. I will ask further questions later. I think my time has expired.

Chairman STOKES. The time of the gentleman has expired. I think this would be an appropriate time for the committee to adjourn until tomorrow morning. The Chair would first excuse the witness until 9 a.m. tomorrow morning. All persons in the hearing room are requested to remain in their seats until the witness has departed the room, after which the Chair will adjourn the hearings until tomorrow morning.

The meeting is adjourned until 9 a.m. tomorrow morning.

[Whereupon, at 3:55 p.m. the committee adjourned, to reconvene on Thursday, September 14, 1978, at 9 a.m.]



INVESTIGATION OF THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

THURSDAY, SEPTEMBER 14, 1978

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON ASSASSINATIONS,
Washington, D.C.

The select committee met, pursuant to adjournment, at 9:10 a.m., in room 345, Cannon House Office Building, Hon. Louis Stokes (chairman of the select committee) presiding.

Present: Representatives Stokes, Devine, Preyer, Fauntroy, Sawyer, Dodd, Ford, Fithian, and Edgar.

Staff present: G. Robert Blakey, chief counsel and staff director; Robert Genzman, staff counsel; Michael Goldsmith, senior staff counsel; Surell Brady, staff counsel; and Elizabeth L. Berning, chief clerk.

Chairman STOKES. A quorum being present, the committee will come to order.

The Chair will request that all persons in the hearing room please take their seats and remain in their seats while the witness is being brought in.

Additionally, at any time that the witness is taken back out of the room, we request that all persons in the room remain in their seats until the witness has left the room.

Good morning, Mrs. Porter.

Mrs. Porter, you are still under the oath that was administered to you yesterday.

You understand that, do you not?

TESTIMONY OF MARINA OSWALD PORTER—Resumed

Mrs. PORTER. Yes, I do.

Chairman STOKES. Thank you.

The committee will operate under the 5-minute rule.

At this time the Chair recognizes the gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman.

Good morning, Mrs. Porter.

Mrs. PORTER. Good morning.

Mr. DODD. Mrs. Porter, yesterday in response to a question from Congressman Preyer, you said that you could not state an opinion as to whether Lee Oswald assassinated President Kennedy.

Mrs. PORTER. Yes.

Mr. DODD. Now as I understand it, you testified that you believed that Lee Oswald attempted to assassinate General Walker.

You testified that you prevented Lee Oswald from leaving the house by locking him in a bathroom because you believed that he was going to shoot Richard Nixon.

You further testified that you did not believe that Lee Oswald would have worked with an accomplice. And in answering the question as to whether Lee Oswald could have worked with an accomplice, you stated that although you weren't a psychiatrist you knew him very well, and could say what he might and might not do.

Now, Mrs. Porter, I am going to ask you again, just as Congressman Preyer did yesterday, do you believe that Lee Oswald killed the President of the United States?

Mrs. PORTER. I honestly don't know how to answer this question. I can just repeat what I said yesterday, I am not in position to make statement to force somebody to believe my way or if you just want my personal——

Mr. DODD. You are not going to be forcing anyone to believe——

Mrs. PORTER [continuing]. Or convince somebody. If you want just my personal opinion——

Mr. DODD. That is what you were asked yesterday.

Mrs. PORTER. Yes.

Yes, I do.

Mr. DODD. You do believe that your husband——

What is your full answer to that question?

Mrs. PORTER. Yes; I do believe that the man was capable of doing such a crime.

Mr. DODD. Do you believe he acted alone?

Mrs. PORTER. Yes, I do.

Mr. DODD. Would you tell this committee what you believe to be, what the reasons are, on what basis do you draw that conclusion?

Mrs. PORTER. Maybe just a plain intuition, I don't know. But I did not claim that I knew the man very well, but whatever portion of his life that I shared with him, I came to conclusion, not conclusion, but at least I do not believe that Lee will trust and confide in someone.

Mr. DODD. I am sorry, I didn't hear your last statement.

You didn't——

Mrs. PORTER. I do not believe that he would confide in somebody. He wasn't that open of a person.

Mr. DODD. Is what you are telling the committee——

Mrs. PORTER. Only from what I know.

Mr. DODD. I understand that.

Is what you are telling the committee, that as a result of having lived with this man for 4 years——

Mrs. PORTER. I don't believe it was that long.

Mr. DODD. Well, 3 years, whatever the period of time was there. That you knew him well, knew him better probably than any other human being——

Mrs. PORTER. I don't know.

Mr. DODD [continuing]. And that as a result of your knowledge of him, is it on that basis on which you draw the conclusion?

Mrs. PORTER. Yes, sir.

Mr. DODD. Are you aware, or do you have any knowledge of the fact that Lee Oswald attempted suicide at any point in his life?

Mrs. PORTER. I did not know when we were married. I find out about that later.

Mr. DODD. How much later did you find out?

Mrs. PORTER. After the assassination.

Mr. DODD. After the assassination?

Mrs. PORTER. Yes.

Mr. DODD. You never noticed any scars on his wrists?

Mrs. PORTER. Yes, I did notice scar.

Mr. DODD. Did you ask him about it?

Mrs. PORTER. Yes.

Mr. DODD. And what was his response to you?

Mrs. PORTER. He didn't want to talk about it, said it was something in his childhood he would rather not talk about.

Mr. DODD. Did you suspect that he may have attempted suicide?

Mrs. PORTER. No.

Mr. DODD. I would like to draw your attention, if I could, Mrs. Porter, to the time, period of time, in which you and Lee Oswald lived in Russia, in Minsk, if I could.

Do you recall the conditions under which you were living in Minsk, the type of conditions?

It has been stated that you and Lee Oswald actually were living under circumstances that were better than the average Russian or the average Russian citizen, particularly an average working class Russian 22 years old.

Now aside from the reason that you gave yesterday, that he was a foreigner, were there any other reasons why it was that you and Lee Oswald would be given special consideration in your living accommodations in Minsk?

Mrs. PORTER. No, that is only the reason that I could think of or know of, only just what I said yesterday.

Mr. DODD. There is no other reason whatsoever?

Mrs. PORTER. I don't see any other reason.

Mr. DODD. Is it a fact that you were living under conditions that were better than the average 22-year-old Russian working class citizen?

Mrs. PORTER. Well, if it was only me, I would not be, I would not have that. Lee had apartment before we were married.

Mr. DODD. I understand that.

But my question to you is, was it not in fact a better living condition, much better living circumstances, than the average working class 22-year-old Russian, and, if so, are there any other considerations that you are aware of that would explain why he received that special treatment, other than the fact that he was a foreigner?

Mrs. PORTER. That is only thing that I know, just because he was a foreigner—we had the privileges.

Chairman STOKES. The time of the gentleman has expired.

Mr. DODD. Mr. Chairman, could I ask unanimous consent to proceed for 2 or 3 additional minutes?

Chairman STOKES. Without objection the gentleman is recognized.

Mr. DODD. Mrs. Porter, at the time you married Lee Oswald, did anyone from the Soviet secret service, the KGB, question you as to why you were marrying Lee Oswald?

Mrs. PORTER. It wasn't the permission to marry Lee wasn't granted that quickly, and the man who finally signed the papers, he tried to talk me out of it. He asked for my reasons.

Mr. DODD. He tried to talk you out of it?

Mrs. PORTER. Yes.

Mr. DODD. To convince you not to marry Lee?

Mrs. PORTER. "Why do a young girl like you marry a foreigner? Can't you find a Russian boy," and things like that. "You know him so little." It was more or less kind of fatherly advice.

Mr. DODD. Were you asked at that time, because you were marrying a foreigner, to report to the KGB, or provide any information that might come to your knowledge as a result of information that your husband might share with you?

Mrs. PORTER. No.

Mr. DODD. At the time of your departure or the application for departure from the Soviet Union, were you questioned by the KGB?

Mrs. PORTER. No.

Mr. DODD. Were you questioned by any Soviet authority as to the reasons why you wanted to leave the country, other than the people you would normally meet during the normal application visa application process?

Mrs. PORTER. No.

Mr. DODD. Do you know whether or not your husband, Lee Oswald, at that time, was questioned by any Soviet officials as to why he wanted to leave the country?

Mrs. PORTER. I don't know.

Mr. DODD. Do you remember when it was that you applied for an exit visa from Russia, what month?

Mrs. PORTER. If I recall correctly, it probably June.

Mr. DODD. I think June 1962 was when you actually left, June 2, 1962 is when you actually left.

Do you recall when you made application?

Mrs. PORTER. June 1961.

Mr. DODD. I am sorry?

Mrs. PORTER. It could be June 1961. It took whole year to wait for the permission and papers to be processed.

Mr. DODD. You made application in June of 1961?

Mrs. PORTER. If I am correct remembering the month, it took almost a year, a little over a year to wait for the permission.

Mr. DODD. When you left Russia, you went, you exited through Brest, I believe.

Mrs. PORTER. Brest, yes.

Mr. DODD. And then you went to Rotterdam.

Mrs. PORTER. Yes.

Mr. DODD. Was Lee Oswald with you the entire time, from the time you left the Soviet Union until the time you arrived in the United States?

Mrs. PORTER. Yes.

Mr. DODD. Was there any significant period of time when he was out of the area, when he was absent?

Mrs. PORTER. Well, we traveled by train to Rotterdam, and he didn't leave, I mean there is no way you can leave anyway on the train. He was present all the time.

Mr. DODD. All the time.

Mrs. PORTER. Yes.

Mr. DODD. Until you got to Rotterdam.

Mrs. PORTER. Except maybe when he went, you know, for the bathroom and things like that.

Chairman STOKES. The time of the gentleman has again expired.

Mr. DODD. I ask, if I can, unanimous consent for 1 additional minute to finish this line of questioning.

Chairman STOKES. Without objection the gentleman is recognized.

Mr. DODD. You were in Rotterdam for how long?

Mrs. PORTER. I think we spent 1 night over there, I think.

Mr. DODD. If I told you it was 3 days, would you argue with me?

Mrs. PORTER. No.

Mr. DODD. During that 3-day period, did you see anyone, other than Lee Oswald? Did you meet any people?

Mrs. PORTER. Not—I seen some faces and people around, but I did not talk to anyone.

Mr. DODD. Where did you stay in Rotterdam?

Mrs. PORTER. It looked like a boardinghouse somewhat.

Mr. DODD. How did you get the name of that boardinghouse? Did someone give you that or did you just come across it?

Mrs. PORTER. I think Lee had some kind of preliminary—is that the correct word to use?

Mr. DODD. I am sorry?

Mrs. PORTER. Anyway, it was Lee who arranged, or somebody arranged for him. I do not know who it was or who recommended certain—

Mr. DODD. I am sorry?

Mrs. PORTER. I did not know who recommended a certain place.

Mr. DODD. But it was clear to you that when you arrived there, the people knew that you were going to be there.

Mrs. PORTER. I don't know.

Mr. DODD. When you walked in the door, did they say "Hello, it's nice to see you. We have been waiting for you"?

Mrs. PORTER. I did not speak English, so Lee was doing all the talking. I just followed him.

Mr. DODD. They spoke English then.

Mrs. PORTER. I assumed they were.

Chairman STOKES. The time of the gentleman has expired.

Mr. DODD. I thank you, Mr. Chairman. I will come back to this.

Chairman STOKES. The gentleman from Tennessee, Mr. Ford.

Mr. FORD. Thank you, Mr. Chairman.

Mrs. Porter, back to the question of Mr. Dodd.

When you and your husband received the visa to return to the United States, did you ever wonder why or inquire as to why it was so easy to obtain the visas?

Mrs. PORTER. It wasn't easy. It was lots of redtape and lots of gony of waiting period, and up to the last minute, I did not know we were going to be permitted to leave the country or not, so it really came as a nice surprise.

Mr. FORD. Over what period of time? Was it 1 month or 2 months?

Mrs. PORTER. It took almost a year, a little over a year.

Mr. FORD. A little over a year.

Mrs. PORTER. Yes.

Mr. FORD. Why is it you were unable to identify the rifle that allegedly belonged to Lee Oswald when you have testified that you saw it on numerous occasions, moved it around while cleaning the house, and had taken photos of Lee with the rifle in his hand?

Mrs. PORTER. Would you please pardon me, my ignorance, but all the rifles look alike to me, unless it is the very small size and a large size. I am not expert on the rifles or guns.

Mr. FORD. Did it look the same?

Mrs. PORTER. Well, unless they paint it black and white, I would not really know the difference, brown, you know, lighter color or darker color or something, but—

Mr. FORD. There wasn't anything about that rifle that stuck in your mind that you might have used to later identify it?

Mrs. PORTER. No; I don't.

Mr. FORD. Who brought it to your attention that you had destroyed some of the photos of Lee taken with the rifle and the handgun? How were they aware that you had destroyed some of the pictures?

Mrs. PORTER. Would you please repeat the beginning of your question?

Mr. FORD. Yes.

Who brought it to your attention that you had destroyed some of the photos of Lee taken with the rifle and the handgun, and how were they aware that you had destroyed some of the pictures?

Mrs. PORTER. I don't remember who pointed out to me.

Mr. FORD. I didn't hear you.

Mrs. PORTER. I do not remember who pointed this out to me.

Mr. FORD. You don't recall who?

Mrs. PORTER. No; I don't.

Mr. FORD. Mrs. Porter, you have told so many different versions of this period for various reasons, to protect Lee, to protect yourself, to keep from being sent back to Russia because of fear or strong emotions.

I want to ask now, are you sure that at this point you are really clear on these facts, or have your many stories confused you as well as the American people?

Mrs. PORTER. The question is so long it is not easy to answer.

Mr. FORD. Let me repeat it to you in parts then.

You have told many different versions of this period for various reasons. You have testified that you did this to protect Lee, to protect yourself, to keep from being sent back to Russia, because of fear, or strong emotions. Are you sure that you have not confused yourself; do you know the truth at this point? What are you telling us? At what point are we to believe what you are saying before this committee?

Mrs. PORTER. May I consult with my attorney, please?

Mr. FORD. Yes.

[Witness consults with counsel.]

Mrs. PORTER. I am sorry.

If you are trying, if you are asking me if I do know anything more than I already said, that is what the question was.

Anyway I am telling absolutely the truth. I do not know anything more. Of course, it is very confusing when you read so many things in the newspapers, and I am just as anxious to find the answers as everybody else.

Chairman STOKES. The time of the gentleman has expired.

Mr. FORD. Thank you, Mr. Chairman.

Chairman STOKES. The Chair recognizes the gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman.

Mrs. PORTER, I am curious. Why have you not obtained citizenship applied for it by now?

Mrs. PORTER. Well, because I am quite lazy about to do so. I would love to become American citizen. I will be honored to become American citizen, but with the household duties, and you do have to take time to study certain literature and really be prepared to be accepted, you know, to pass exams and things like that.

Another thing, I am afraid that maybe I will be refused, and I don't want to take a defeat.

Mr. SAWYER. As I understood your testimony, you never heard of Jack Ruby before this assassination and subsequent events.

Mrs. PORTER. That is correct, sir.

Mr. SAWYER. Did Oswald ever mention anything about the Carousel?

Mrs. PORTER. I was quite surprised when they start talking about Jack Ruby and asking questions about, did he ever went to the bar? Of course I wasn't present there, so I would not know. But Lee wasn't drinking. I mean he did not drink. So I don't see any reason for him to go to a bar or places like it.

Mr. SAWYER. But you never heard Lee mention the Carousel, I assume.

Mrs. PORTER. No.

Mr. SAWYER. And did he ever mention any friends that he might have had, or acquaintances in the Dallas Police Department?

Mrs. PORTER. No.

Mr. SAWYER. Never mentioned—that he had——

Mrs. PORTER. No.

Mr. SAWYER [continuing]. Any acquaintance there.

Referring now to the writing on the reverse side of the picture that is up there on the board, what do those top two lines say in Russian? Can you tell me?

Mrs. PORTER. You want me to translate it to English?

Mr. SAWYER. Yes.

Mrs. PORTER. "Hunter for the fascists."

Mr. SAWYER. "Hunter for the fascists."

Mrs. PORTER. Yes, "Ha, ha, ha," You know.

Mr. SAWYER. But the writing before the "Ha, ha, ha" is "Hunter for the fascists" is that correct?

Mrs. PORTER. Yes.

Mr. SAWYER. And then the writing down in the lower right "To my friend George. From Lee Oswald" did I understand whether or not you could identify that as Lee's writing?

Mrs. PORTER. I cannot identify it as Lee's writing. I cannot, I do not remember what Lee's handwriting looks like in English. I do not have anything in my hands to compare.

Mr. SAWYER. So that when you say you can't, it is merely that you don't know whether it is or not. You don't have an opinion that it is not his handwriting.

Mrs. PORTER. That is true. It is for experts to compare.

Mr. SAWYER. And the way the date is written there, "5," and then a slant, and then "IV," and then slant and "63" do I understand that would be a way in writing it in Russian of 5 April 1963, in effect?

Mrs. PORTER. Yes, sir, that is correct.

Mr. SAWYER. Because they use a Roman numeral for the month.

Mrs. PORTER. Some do, yes.

Mr. SAWYER. And usually they have the month follow the date, like they do in the Navy or other.

Mrs. PORTER. Yes, I guess so.

Mr. SAWYER. I presume that George is DeMohrenschildt; am I correct on that?

Mrs. PORTER. Yes, sir.

Mr. SAWYER. Because down where it says "Copyright," then in the same handwriting as the copyright is written, it has "G" and then "de" and then "M" which I presume are George DeMohrenschildt's initials.

Mrs. PORTER. Yes; I presume that is.

Mr. SAWYER. Do you know whose writing it is in Russian up at the top, where it says "Hunter for fascists. Ha, ha, ha"?

Mrs. PORTER. Well, some letters would be, look like I would write, but some not, so I am confused about that inscription in the back.

Mr. SAWYER. You don't know whether that is your writing or not, or do you know it is not? You are not clear on it?

Mrs. PORTER. Well, like if I look at first, you know, I think yes, it is my handwriting, until I start to analyze it, and it is not. Those letters "Ha, ha, ha," you know, the letter "Ha," that is not my way of writing this certain letter.

Chairman STOKES. The time of the gentleman has expired.

Mr. SAWYER. Thank you, Mr. Chairman.

Chairman STOKES. The gentleman from the District of Columbia Mr. Fauntroy.

Mr. FAUNTROY. Thank you, Mr. Chairman.

Mrs. PORTER, would you refresh me on why you moved to Minsk?

Mrs. PORTER. Why did I move to Minsk?

I did not have very good relationship with my stepfather, and it was lots of static in the air and friction between two of us, so I felt like I was in his way, and I had nowhere else, no other place to go except where my aunt and uncle live. So I took a chance to go with them, find a job during the summer.

Mr. FAUNTROY. And you lived with your aunt and uncle?

Mrs. PORTER. Yes.

Mr. FAUNTROY. And your uncle never talked to you about his work at all?

Mrs. PORTER. No.

Mr. FAUNTROY. Did you know where he worked?

Mrs. PORTER. At a building?

Mr. FAUNTROY. No; did you know for what agency he worked?

Mrs. PORTER. No.

Mr. FAUNTROY. He never talked about his work——

Mrs. PORTER. No.

Mr. FAUNTROY [continuing]. To you?

Mrs. PORTER. It wasn't customary for people who worked for IVD to discuss their job at home.

Excuse me.

[Witness consults with counsel.]

Mrs. PORTER. Oh, excuse me, sir, did I understand you right? You did did I know if my uncle was working for MVD? That was your question?

Mr. FAUNTROY. Yes.

Mrs. PORTER. Yes, I did know that he was working for MVD, yes.

Mr. FAUNTROY. So your testimony is that you knew he was working——

Mrs. PORTER. For MVD, but I did not know what he did.

Mr. FAUNTROY. He never discussed that with you——

Mrs. PORTER. No.

Mr. FAUNTROY [continuing]. In any way?

Mrs. PORTER. Or with his wife either.

Mr. FAUNTROY. Was it customary in your experience as a teenager that people met and married within 6 weeks?

Mrs. PORTER. I don't think so. Some do and some don't.

Mr. FAUNTROY. Some do and some don't.

Would you say that your relationship with Lee Oswald was one of love at first sight?

Mrs. PORTER. No. I like him, but I did not fall in love right away.

Mr. FAUNTROY. It does strike at least this member as strange that you could get married in 6 weeks.

Mrs. PORTER. Well, he was appealing to me. I did not marry him because he was American who will bring me back, I mean who will take me to United States. In fact, if I knew that he will come back, I would not marry him.

Mr. FAUNTROY. So it was not a motivation of your wanting to come to United States?

Mrs. PORTER. No.

Mr. FAUNTROY. That may have been——

Mrs. PORTER. No.

Mr. FAUNTROY. That is not the explanation for the 6 weeks?

Mrs. PORTER. No, it is not, because of my hatred of United States.

Mr. FAUNTROY. Nor is it that you were head-over-heels in love with him.

Mrs. PORTER. Pardon me?

Mr. FAUNTROY. Nor was it that you were head-over-heels in love with him.

Mrs. PORTER. Well——

Mr. FAUNTROY. I guess that is a difficult question to answer. You simply state it wasn't——

Mrs. PORTER. It wasn't for the reason of becoming, I mean to come here.

Mr. FAUNTROY. All right.

I just have one other question which relates to the question of Lee Oswald's attitude toward the FBI.

You do recall that you indicated to the Warren Commission that he became involved with the Fair Play for Cuba Committee in New Orleans after he had lost his job?

Mrs. PORTER. I guess that is correct.

Mr. FAUNTROY. And then to the FBI you indicated that he lost his job because of his work with the Fair Play for Cuba Committee?

Mrs. PORTER. Well, that is correct.

Mr. FAUNTROY. And yesterday you said that Lee blamed the FBI for the loss of his job?

Mrs. PORTER. Every time he lost job, he told me that the reason for that were probably because FBI harass him so. I got the impressions that FBI are not treating him, you know, fair.

Chairman STOKES. The time of the gentleman has expired.

Mr. FAUNTROY. May I ask unanimous consent for 1 additional minute, Mr. Chairman?

Chairman STOKES. Without objection, the gentleman is recognized.

Mr. FAUNTROY. And I understand yesterday that you also said you admitted you were lying to the Warren Commission?

Mrs. PORTER. No; I didn't.

Mr. FAUNTROY. Which was it?

Mrs. PORTER. I wasn't lying. I wasn't delivering maybe correct or right away on-the-spot information to FBI. I think that is what was said yesterday. Much testimony to FBI and Warren Commission sometimes were contradictory.

Mr. FAUNTROY. Tell me what your recollection now of the truth is?

Mrs. PORTER. In what regard? I mean everything I am telling you is the truth.

Mr. FAUNTROY. Did Mr. Oswald begin his work with the Fair Play for Cuba Committee after losing his job, or did he lose his job in your view because of the work with the Fair Play for Cuba Committee, and as a result, of FBI intervention?

Mrs. PORTER. Well, when I was married to Lee, and because of most of information or whatever I got from him, then I blame FBI for him losing the job, but analyzing later on, him as a person, that wasn't the reason for him losing the job, so in my mind now he did not lose the job because of the FBI.

Chairman STOKES. The time of the gentleman has again expired.

Mr. FAUNTROY. Thank you.

Chairman STOKES. The gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. Thank you, Mr. Chairman.

Mrs. Porter, I want to return to the inscription on the back of the photograph briefly.

Before I do that, let me ask you how much education have you had, how many years of schooling?

Mrs. PORTER. I finish school and I attend pharmacy school afterward for 4 years. I have a diploma, you know, to be a pharmacist.

Mr. FITHIAN. I have only had a little bit of study of the Russian language, but even a very cursory, very brief glance at the back of that photograph would indicate that not even a grade school student of Russian writing would have written that.

Now I could go through several reasons why I cannot believe you would ever have written it, unless you were intentionally trying to mislead someone.

Just a couple of very quick things.

The differences between the Russian "t" or "ta" in the Russian word "okhotnik" as compared to the "fash(i)stami" are clearly either written by someone who doesn't know Russian, or the two words are written by different people, because in that sequence of an internal "t" you would simply not make the English "m" with a crossbar over in one case and turn around and use the English "t" in "fash(i)stami."

I could go on.

The three "a's" in "ha, ha, ha" do not match. The "e" in the Russian word "okhotnik" is printed in a very awkward and broken fashion. The "f" in the "fash(i)stami" it seems to me is written in a very unusual manner with the loops on the "f" at the top of the cross staff and so on.

Can't you testify to this committee that you did not indeed write that on that photograph?

Mrs. PORTER. As I told you, I am just puzzled, and I am just as curious as you are.

Mr. FITHIAN. But we will get later today to discussing the handwriting. I am simply asking you, cannot you at this point specifically testify to this committee that that is not your writing?

Mrs. PORTER. Yesterday I was thinking after I left this room, I was thinking exactly the same thing as you did, or that had been written by a very old person, because sometimes people with the age, they don't have such a good grip, or a child.

Mr. FITHIAN. Anyone trained in Russian schools after 1930 or 1935 would not have been trained with the bar over the "m" to make the Russian "t" and there are just a number of other items of calligraphy and handwriting and I am not a handwriting expert, but all I am saying is you cannot testify—

Mrs. PORTER. I cannot claim this as my handwriting. But I told yesterday this is my way of writing "t." I put the dart, whatever you call it, line on top of "t." This is my habit of writing "t."

Mr. FITHIAN. You do use the equivalent of the English "m" with the bar across it—

Mrs. PORTER. Well, I use both.

Mr. FITHIAN [continuing]. As in the Russian word of "okhotnik"?

Mrs. PORTER. In the word of okhotnik, if I have time, I write "t" that way. If I am in a hurry, writing a letter another "t" with the word fascist.

Mr. FITHIAN. That is the way you write "t."

Mrs. PORTER. In a hurry I write "t," yes, but I cannot claim the whole world, I mean the whole word, or the whole sentence was written by me.

Mr. FITHIAN. Let me ask you this: Is it possible that the word "okhotnik" was on the photograph written by someone else, and then you added the "sa" fash(i)stami?

Mrs. PORTER. No.

Mr. FITHIAN. You did not do that.

Mrs. PORTER. No; I do not remember ever writing anything on the photograph.

Mr. FITHIAN. And then looking at the words, isn't it your best judgment that you indeed did not write any of those words?

Mrs. PORTER. I don't recall writing—anything.

Mr. FITHIAN. I am not asking what you recall. I am asking you to look at it, and you know your handwriting over some years, and can't you simply flat out testify to this committee that you did not, that that is not your handwriting?

Mrs. PORTER. Well, I told you yesterday my handwriting is not very consistent. You know, like if I start a letter, I do not finish it with the more or less same handwriting. But as I said, I am not expert. I am very confused about this picture. I do not remember writing anything on it. If I started studying the handwriting and claim it as my own, I can't.

Chairman STOKES. The time of the gentleman has expired.

Mr. FITHIAN. I ask unanimous consent to proceed for a few minutes.

Mrs. PORTER. Excuse me, can I talk to my lawyer?

[Witness consults with counsel.]

Chairman STOKES. Without objection, the gentleman is recognized for an additional 3 minutes.

Mr. FITHIAN. Did you tell Mrs. McMillan that that was not your writing?

Mrs. PORTER. I probably have. We discussed that, yes.

Mr. FITHIAN. And you told her it was your best guess, your best judgment, that that was not your writing?

Mrs. PORTER. I can't say I can say that that doesn't look like my handwriting.

Is that what you are asking?

Mr. FITHIAN. No, I am asking you what you told Mrs. McMillan.

Mrs. PORTER. Well, we work on the book.

Do you mean when we work on the book?

It was so long ago, I don't remember what we were talking about, and this picture didn't come, I mean I never seen this.

Mr. FITHIAN. Let's turn to the picture, the pictures, and the negatives which went along with them. You told the committee yesterday that you burned some of the evidence, some pictures, etcetera, after the assassination of President Kennedy; is that correct?

Mrs. PORTER. Yes.

Mr. FITHIAN. Do you remember burning any negatives, that is the film from which the picture is made?

Mrs. PORTER. No.

Mr. FITHIAN. All you remember is burning pictures themselves.

Mrs. PORTER. I vaguely remember destroying the pictures, a picture.

Mr. FITHIAN. What other evidence or material did you destroy in your haste to try to get rid of evidence?

Mrs. PORTER. As far as I know, only that, this picture.

Mr. FITHIAN. In Lee's practice of writing a kind of a diary, did he keep letters from other people as a part of that sort of keeping track or keeping a record of things?

Mrs. PORTER. I don't know, sir.

Mr. FITHIAN. What?

Mrs. PORTER. I do not know.

Mr. FITHIAN. Did you ever see any letters in his writing and material from others?

Mrs. PORTER. I don't have a habit to go through, you know, somebody's belongings, so I don't remember everything, letters, unless they were addressed to me and would receive some letters, sometime Lee let me to read them, or tell me what it was all about.

Mr. FITHIAN. Was it his custom when he wrote a letter to a person to make a copy for himself?

Mrs. PORTER. I don't know, sir.

Chairman STOKES. The time of the gentleman has again expired.

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES. The gentleman from Ohio, Mr. Devine.

Mr. DEVINE. Mrs. Porter, how did you happen to land in Mrs. Paine's residence? Who found that place to live? Was it you or was Lee?

Mrs. PORTER. I forgot how I was introduced to Mrs. Paine and how we met. But she was a very kind and generous person. She did study Russian in Berlitz School, and in order not to offend me by just inviting to live as a charity to her house, she asked if I can help her with her Russian studies, and that was my payment for.

Mr. DEVINE. Who knew her, met her originally?

Mrs. PORTER. I don't recall. I am sorry.

Mr. DEVINE. Who made the initial contact with her to live in her home?

Mrs. PORTER. I don't remember.

Mr. DEVINE. You don't know.

Was she aware that Lee had ammunition and guns among your personal property there?

Mrs. PORTER. I wouldn't know. I did not tell her.

Mr. DEVINE. I believe you said that he kept the gun in a blanket in the garage; is that correct?

Mrs. PORTER. He kept rifle in the garage, yes.

Mr. DEVINE. So she wouldn't necessarily know that.

Mrs. PORTER. I don't think so.

Mr. DEVINE. Following the assassination of the President, this committee has received evidence that your then husband left the book depository, walked several blocks, caught a bus. The bus became involved in traffic. He left the bus, hired a taxicab which took him back to the neighborhood.

Did you see Lee after seeing the announcement on television that the President had been assassinated?

Mrs. PORTER. Did I see him?

Mr. DEVINE. Yes.

Mrs. PORTER. No. I saw him the last, the next time, in jail.

Mr. DEVINE. He did not come to the residence, as far as you know.

Mrs. PORTER. Sir, Irving is quite far away from Dallas.

Mr. DEVINE. I didn't understand.

Mrs. PORTER. I was at Ruth Paine's house, a suburb of Dallas. Unless somebody drove him there, he could not come.

Mr. DEVINE. You don't know whether he had the handgun then when he left that morning or not?

Mrs. PORTER. I don't know. I didn't see him leaving.

Mr. DEVINE. The evidence further shows that after he was in the neighborhood of the Paine residence, he then on foot went several blocks away, at which time he was confronted by Officer Tippit.

Mrs. PORTER. I believe you are a little bit confused about Paine residence, sir.

Mr. DEVINE. Right, right, but then you would reaffirm the fact that you did not see Lee from the time he left early that morning to go to work until you then saw him in jail.

Mrs. PORTER. Yes, sir; that is correct.

Mr. DEVINE. I yield back the balance of my time.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Indiana; the gentleman from Pennsylvania, rather, Mr. Edgar.

Mr. EDGAR. Thank you, Mr. Chairman.

Mrs. PORTER, just to follow up on that question, we had an opportunity to go to Dallas and look at the neighborhood where Lee Oswald had his apartment. You had indicated that he came the night before to your residence with Mrs. Paine.

How did he get there?

Mrs. PORTER. I forgot this man that he worked with at the school book depository, he was a neighbor, and he usually gave Lee a lift, he dropped him off.

Mr. EDGAR. I am interested in trying to develop a personal picture of Lee Harvey Oswald, and you have given us some clues. You have indicated that he did not drink. You had indicated that he sat for long periods of time looking, and playing and using his rifle.

What is a description of him as a person? This individual you met, and within 6 weeks married, must have made some impression on you in terms of his personality.

Can you describe for the committee what Lee Harvey Oswald was like as a person?

Mrs. PORTER. I am afraid I cannot describe person just in one statement or one small phrase.

Mr. EDGAR. What did he look like?

Mrs. PORTER. You mean physically?

Mr. EDGAR. Physically.

Mrs. PORTER. He wasn't very tall man. He was a little bit taller than me. I mean, whatever, he was neat in appearance, he had good manners, in Russia.

Mr. EDGAR. Was he strong?

Mrs. PORTER. Pardon me?

Mr. EDGAR. Was he strong?

Mrs. PORTER. Well, he was stronger than me, but he wasn't a he-man.

Mr. EDGAR. What was his attitude towards himself?

Mrs. PORTER. I don't know. I am sorry.

Mr. EDGAR. Let me ask you this question: Did you get the sense from him that he wanted to feel like a man, that is, to be very strong and very powerful?

Mrs. PORTER. Not physically powerful, I don't think that was.

Mr. EDGAR. Mentally powerful?

Mrs. PORTER. I think he want to be somebody, I guess. He want to be recognized by people, or maybe have a better job that he think that he was entitled to.

Mr. EDGAR. So he had the sense of himself that he was more important or he wanted to be more important than people were recognizing him to be.

Mrs. PORTER. That is correct.

Mr. EDGAR. And how did he treat you? Was he gentle to you as an individual?

Mrs. PORTER. Well, part, some, like when we were in Russia he was quite gentle and nice and thoughtful. But when we came to United States, his personality was changing, and he was cruel many times.

Mr. EDGAR. He was cruel.

You indicated that he was cruel in the activity around General Walker, and you indicated some other illustrations of his cruelty.

Can you recollect any time in which he was cruel to you? Did he beat you physically?

Mrs. PORTER. That is not very pleasant thing to talk about, but the answer is yes.

Mr. EDGAR. The answer is yes.

Mrs. PORTER. Yes.

Mr. EDGAR. He physically hit you——

Mrs. PORTER. Yes.

Mr. EDGAR [continuing]. At some point.

Did you ever require any medical treatment because of his cruelty?

Mrs. PORTER. No, I did not.

Mr. EDGAR. You indicated that you knew that he had the rifle, and you knew about the attack on General Walker. You knew about the suggested or attempted attack on Mr. Nixon.

To your best recollection, were there any other incidences that you can recall where he fired the rifle, either at someone or in your presence?

Mrs. PORTER. That is only facts that I know.

Mr. EDGAR. Can you recall whether he committed any crimes that have so far not been brought out in your testimony?

Mrs. PORTER. I don't know any of those.

Mr. EDGAR. Did he have any other rifles or any other weapons other than the rifle and the pistol?

Mrs. PORTER. Not to my knowledge. That is all I know of.

Mr. EDGAR. Let me ask you this question. This is a little bit off the course of those questions but it is one that has intrigued me.

Lee Harvey Oswald met you in Russia. You spent a little over a year together married and then you came to the United States. You had a job, and he was bringing home a paycheck. You were living fairly well off, at least for Russian standards at the time.

How did you pay for your trip from Russia to the United States? Where did that money come from?

Mrs. PORTER. As far as I know, Lee told me he borrowed from the American Embassy.

Chairman STOKES. The time of the gentleman has expired.

Mr. EDGAR. May I have two additional minutes, Mr. Chairman?

Chairman STOKES. Without objection, the gentleman is recognized for an additional 2 minutes.

Mr. EDGAR. Thank you.

To the best of your recollection, he borrowed the money from U.S. Embassy?

Mrs. PORTER. That is what he told me.

Mr. EDGAR. Did he at any time, to your knowledge, physically go to the U.S. Embassy—

Mrs. PORTER. Yes, sir.

Mr. EDGAR [continuing]. To pick the money up?

Mrs. PORTER. Oh, I answered the question: that did he physically go to the Embassy? I said yes. But then you said to pick the money. I do not remember how and when he picked, you know, he got the money.

Mr. EDGAR. When you arrived in the United States, did Lee seem to have some money to hold you over until he got a job?

Mrs. PORTER. I do not remember how much money he had left. I do not recall if he had any left or not.

Mr. EDGAR. How did you pay for your food?

Mrs. PORTER. We live with his brother for a while.

Mr. EDGAR. How did you pay for just your general expenses?

Mrs. PORTER. I never handled the money when I was married to Lee. He was the one.

Mr. EDGAR. He handled all of the money.

Mrs. PORTER. Yes.

Mr. EDGAR. How long after you returned to the United States did he get a job?

Mrs. PORTER. I don't remember.

Mr. EDGAR. Two weeks, three weeks?

Mrs. PORTER. That sound right.

Mr. EDGAR. So there is a 2- or 3-week period where he was looking for a job and not working.

Mrs. PORTER. Yes.

Mr. EDGAR. Thank you.

I yield back my time, and I will come back to questions later.

Chairman STOKES. The time of the gentleman has expired.

Mrs. Porter, this morning in response to a question from Mr. Dodd, relative to your opinion as to whether or not Lee Harvey Oswald killed the President, you said your opinion was yes.

Now this is not the first time you have expressed that opinion, is it?

Mrs. PORTER. That is correct.

Chairman STOKES. Let me see if I can refresh your recollection to this extent.

Do you recall during the Warren Commission hearings the late Congressman Boggs saying this to you:

Let's get an answer. I think this answer is quite important.

Mrs. OSWALD. On the basis of all the available facts, I have no doubt in my mind that Lee Oswald killed President Kennedy. At the same time I feel in my own mind, as far as I am concerned, I feel that Lee, that my husband, perhaps intended to kill Governor Connally instead of President Kennedy.

Do you recall that question being asked by the late Congressman Boggs, and your answer being as I read it?

Mrs. PORTER. I do not recall. I never, you know, went back and read my testimony. But if it is printed, that is—since you refresh my memory, that is possible. I am for sure I said that.

Chairman STOKES. So that I understand you, my having read this to you, does this now then refresh your recollection of what you said on that occasion?

Mrs. PORTER. Because I do not remember Senator so and so that you mentioned it, it was so many people around, so many faces, I did not remember, you know, person.

Chairman STOKES. I can understand you perhaps do not remember that particular Congressman. What I am saying to you is, with my having read this to you now, does this refresh your recollection of what was asked of you and what you said on that occasion?

Mrs. PORTER. Well, I really do not remember what I said, but if under oath to the Warren Commission I gave that testimony, that is my testimony.

Chairman STOKES. Then you do not deny that that was your testimony.

Mrs. PORTER. No.

Chairman STOKES. Now again you know Priscilla Johnson McMillan, don't you?

Mrs. PORTER. Yes, sir.

Chairman STOKES. That is the lady who wrote the book "Marina and Lee."

Mrs. PORTER. Yes.

Chairman STOKES. And you talked with her with reference to what she was writing about the book, didn't you?

Mrs. PORTER. Sure.

Chairman STOKES. You have read that book?

Mrs. PORTER. Yes; not recently but a year ago.

Chairman STOKES. I beg your pardon?

Mrs. PORTER. A year ago, yes.

Chairman STOKES. A year ago, right.

Let me read this passage to you from the book. I am reading at page 436.

Marina was now certain that Lee was guilty. She saw his guilt in his eyes. Moreover, she knew that had he been innocent, he would have been screaming to high heaven for his rights, claiming he had been mistreated, and demanding to see officials at the very highest levels, just as he had always done before. For her, the fact that he was so compliant, that he told her he was being treated all right, was a sign that he was guilty.

Did you tell Miss Johnson that?

Mrs. PORTER. Yes.

Chairman STOKES. Now in addition to it, you told Miss Johnson, did you not, about the police coming and taking away many possessions, and one of the possessions that they left was a small demitasse cup, and when you looked and discovered the fact that they had not taken the cup, you also found in there Lee's wedding ring.

Did you tell her about that?

Mrs. PORTER. Well, I do not—I remember the demitasse, but it is missed. I don't know where it is.

Are you asking me did I find Lee's ring?

Chairman STOKES. Did you find his ring?

Mrs. PORTER. Yes, sir.

Chairman STOKES. And then did you tell Miss Johnson this:

"Oh, no," she thought, and her heart sank again, "Lee never took his ring off, not even on his grimmest manual jobs." She had seen him wearing it the night before. Marina suddenly realized what it meant. Lee had not just gone out and shot the President spontaneously. He had intended to do it when he left for work that day. Again things were falling into place. Marina told no one about Lee's ring."

Did you tell Miss Johnson that?

Mrs. PORTER. Yes.

Chairman STOKES. As my time has expired, the Chair would request unanimous consent to proceed for 3 additional minutes.

Without objection.

Now did you tell——

Mr. FAUNTROY. Overruled, Mr. Chairman.

Chairman STOKES. That is democracy.

Mrs. PORTER, it has always been important for the American people to ascribe some motive to this killing. And I notice further that, in the same book, Miss Johnson writes this, and I am reading at page 434 of the book:

In his eyes, his political ideas stood higher even than himself. He would talk about Marxism, Communism, and injustice all over the world.

Did you tell Miss Johnson that?

Mrs. PORTER. That was Miss Johnson's conclusion about studying Lee as a person. Her findings weren't based only on what I told her. She did great research and met with lots of people who knew Lee. That was her conclusion, and I agree with her.

Chairman STOKES. Did you tell her that he talked about Marxism to you, and about communism to you, and about injustice all over the world to you?

Mrs. PORTER. Yes, probably.

[Witness consults with counsel.]

Mrs. PORTER. Well, when you live with person, you know, a few years, and then you have to put bits and pieces of phrases that have been told, and Priscilla worked, will have to go and think about what conversations we have, not to make them up, but to relive them again. That is correct statement that she made.

Chairman STOKES. So that we understand you, he did express himself to you on these kinds of subjects, did he not?

Mrs. PORTER. Well, it is not maybe directly to me or maybe he discussed with somebody else and I overhear the conversation.

Chairman STOKES. And when you overheard the conversations, these were conversations you understood?

Mrs. PORTER. Yes.

Chairman STOKES. What he was saying?

Mrs. PORTER. Yes.

Chairman STOKES. And did he have strong views?

Mrs. PORTER. Well, I cannot recall right now the contents of conversation. The book had been started long time ago. My memory was much fresher then.

Chairman STOKES. There has been some discussion with you with reference to the fact that you told certain untruths to both the FBI and the Secret Service for the reason that you wanted to protect Lee. At the same time you were the individual who revealed to the FBI what you knew about the General Walker shooting; is that correct?

Mrs. PORTER. Yes.

Chairman STOKES. Can you explain to us why you would attempt to protect him by telling untruths about other things, such as the rifle, the trip to Mexico, things of that nature, and then would reveal to them something that no one else in the world knew but you?

Mrs. PORTER. I don't think just FBI little by little get all information that I know of, and I just did not come to them and say hey, you know, Lee tried to shoot Walker. But they have been probing and they have, how do you call it, some facts, you know, and by questioning me, you know, quite often I had to reveal the information. You know what I mean? I was cooperative then.

Chairman STOKES. But prior to your revealing it, the FBI had not found out on their own that Lee Harvey Oswald had shot at General Walker, had they?

Mrs. PORTER. I don't know how they done their work. I do not remember when is exactly happen and how it is happened. I told you my reason for withholding it, information, or did not tell exact truth to FBI during the questioning was because of fear for my well being, for my children. I did protect Lee when he was alive because I didn't know what to make of it. I thought maybe he is innocent. It was a hope that he is. It was a very confused state of mind that I had then.

Chairman STOKES. But when you told them about the Walker incident, was it because you were afraid that they would find out about it?

Mrs. PORTER. I don't remember what the reasons exactly were at the time, and maybe didn't happen in one session, maybe just little by little, but I just want to clean my conscience completely. I want to give everything that I could.

Chairman STOKES. I don't quite understand. You said you wanted to clear your conscience of everything that you knew?

Mrs. PORTER. Well, eventually I said everything that I know of Lee and I try to be helpful to a matter by testifying before Warren Commission, talking with you right now.

Chairman STOKES. What I am talking about was the FBI and the others who were talking with you at that time.

Mrs. PORTER. Well, I have hours of testimony with the FBI and Secret Service, so whatever they put together can reveal some kind of picture, and I know it is not flattering, I mean to me, but that is he way it was.

Chairman STOKES. Let me go into another area with you.

You have given some testimony with reference to the fact that when you and Lee were living in Russia, that you felt that your nail was being opened, that your telephones were being tapped.

Mrs. PORTER. We did not have telephone.

Chairman STOKES. I am sorry?

Mrs. PORTER. We did not have telephone.

Chairman STOKES. You did not have a telephone?

Mrs. PORTER. No, not at our apartment.

Chairman STOKES. At any time there in Russia, did you have a telephone?

Mrs. PORTER. No.

Chairman STOKES. I am not quite clear on whether you have told us that you were aware of the fact that you were being watched and monitored by someone there.

Were you?

Mrs. PORTER. Well, I really did not have any doubts that they would keep eye on a foreigner.

Chairman STOKES. By "they," whom do you mean?

Mrs. PORTER. Some authorities, I don't know.

Chairman STOKES. I beg your pardon?

Mrs. PORTER. Some authorities who were supposed to do that. I don't know. Anyway it is gossip or whatever, that people in Russia do think, you know, they are watched.

Chairman STOKES. Can you be more specific when you say "some authorities"? Tell us whom you are talking about.

Mrs. PORTER. Well, it is not somebody dressed in a uniform, you know, like maybe secret police maybe. I don't know.

Chairman STOKES. Didn't you tell Miss Johnson about someone that you walked over to, that you recognized in a railroad station, that you walked over to, a KGB agent?

Mrs. PORTER. I don't remember that right now.

Chairman STOKES. Do you recall talking with anyone in the organization that you were in, the Komsomol, about the fact that you were being watched?

Mrs. PORTER. I probably have, but I do not recall right now.

Chairman STOKES. Again in Priscilla Johnson's book, at page 139 where she says this: "The chairman told her that the Komsomol knew everything about her and her husband. 'We knew each time you had a date. We knew when you applied for your marriage license. We knew the date of your wedding,' he said. Marina was chilled but not surprised. She had long been aware that the Komsomol was a tool of the police. Its members were often assigned to report on the activities of their friends."

Did you tell Miss Johnson that?

Mrs. PORTER. Yes; and all the facts in the book are true. But when you ask me right now, I could not remember; you know what I mean?

Mr. HAMILTON. Mr. Chairman, if this is a convenient time, can we take a break, a 5-minute break?

Chairman STOKES. Just one other question and then we will take a break.

You just said everything in this book——

Mrs. PORTER. The facts are true, yes.

Chairman STOKES [continuing]. Are true, the facts are true.

And here, where you refer to the chairman, who were you talking about?

Mrs. PORTER. The chairman?

Chairman STOKES. Yes.

Mrs. PORTER. I guess the person who conduct meeting or some thing like that.

Chairman STOKES. Counsel, we will at this time grant your request.

We will take a 5-minute recess.

Everyone, please remain seated while the witness leaves the room.

[Recess.]

Chairman STOKES. The Committee will come to order. All persons are requested to take their seats and remain in their seats until the witness has again come into the room and been seated at the witness table.

The Chair recognizes the gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman. Coming back to, well, the picture is gone now, but the writing on the reverse side, they do not in Russia use exclamation marks, do they?

Mrs. PORTER. Yes.

Mr. SAWYER. Do they? Would they use three exclamation marks after—

Mrs. PORTER. Any number you like.

Mr. SAWYER. Pardon?

Mrs. PORTER. Any number that you like, yes; one or three, yes.

Mr. SAWYER. Do you know whether or not that writing in Russian on the top that says "Hunter for Fascists, ha ha ha" would have been Lee's writing?

Mrs. PORTER. I do not know, sir.

Mr. SAWYER. You do not think so?

Mrs. PORTER. I do not know whose writing that is.

Mr. SAWYER. You do not know; is that right?

Mrs. PORTER. No.

Mr. SAWYER. Did you ever see any writing by Mr. DeMohrenschildt?

Mrs. PORTER. Not that I recall.

Mr. SAWYER. I remember your testifying yesterday that you were startled, I think were your words, or shocked to find that DeMohrenschildt knew about Lee's having shot at General Walker. Do you recall that?

Mrs. PORTER. Yes.

Mr. SAWYER. And you were startled because you knew you had not told him about it?

Mrs. PORTER. Yes.

Mr. SAWYER. And I notice that the date on the transmittal of his picture to George DeMohrenschildt is April 5, 1963, whereas Walker was shot at on April 23, 1963, so presumably DeMohrenschildt not only knew about the fact that Lee had shot at Walker, but had received this picture from Lee before that date, before the date of that shooting; is that right?

Mrs. PORTER. So what would you like me to—so what is the purpose of this question? I mean, I did not send this picture.

Mr. SAWYER. Well, just as I look at this, and I do not purport to be any kind of a handwriting expert, but the writing at the bottom, "Copyright G.d.M." appears to have some considerable significance, similarity to the letters of the title written up there in Russian. Did DeMohrenschildt speak and write Russian?

Mrs. PORTER. Yes, I think he did.

Mr. SAWYER. Fluently?

Mrs. PORTER. Yes.

Mr. SAWYER. And as I recall, you said that Lee referred to General Walker as a fascist; is that correct?

Mrs. PORTER. Yes.

Mr. SAWYER. But you are not familiar with the handwriting of DeMohrenschildt yourself?

Mrs. PORTER. No.

Mr. SAWYER. But you do not think this is your handwriting, in any event?

Mrs. PORTER. I do not think so, sir.

Mr. SAWYER. And as to whether it would be Lee's or not, you just do not know; is this right?

Mrs. PORTER. No. I mean if anybody have my handwriting, you know, in Russian somewhere they are welcome to compare.

Mr. SAWYER. When DeMohrenschildt led you to understand, from whatever he said, let you understand he had known about the shooting by Oswald at Walker, what precisely did he say then?

Mrs. PORTER. I do not recall the incident, you know, very clearly, but I think that I was kind of surprised that he made the remark like that, and I assumed that Lee told him, you know. I look at him and then Lee look at me and was thinking that I told him about. Maybe it was just his joking guess or something. Maybe he knew Lee quite well or better than——

Mr. SAWYER. Did you ask Lee about how he knew about it?

Mrs. PORTER. If I did, I do not recall right now, or remember.

Mr. SAWYER. Was there anything in what DeMohrenschildt said that may have been given the impression that he may have participated in that shooting?

Mrs. PORTER. It never crossed my mind, sir.

Mr. SAWYER. It never occurred to you?

Mrs. PORTER. No.

Mr. SAWYER. Did Lee ever say anything about DeMohrenschildt having participated in it with him?

Mrs. PORTER. No.

Mr. SAWYER. When he told you about it, did he tell you he did it alone?

Mrs. PORTER. As far as the Walker incident?

Mr. SAWYER. Yes.

Mrs. PORTER. Yes, sir.

Mr. SAWYER. Is your answer yes?

Mrs. PORTER. Yes.

Mr. SAWYER. And he never at any time mentioned that DeMohrenschildt may have participated?

Mrs. PORTER. No.

Mr. SAWYER. Or aided or abetted in any way?

Mrs. PORTER. No.

Mr. SAWYER. Now, when you saw on television that the President had been shot or were told that that is what was on television, you stated that the blood rushed to your face and that you were very upset momentarily. Do you recall that?

Mrs. PORTER. Yes.

Mr. SAWYER. Did you then proceed immediately to go out and check in the garage to see if the rifle was gone?

Mrs. PORTER. I went outside in the backyard, you know, to the clothesline, because I do not want Ruth to see, you know, my face, and then I went in the garage, I think, I mean what I remember right now, and I did not check. I just looked and the blanket was there.

Mr. SAWYER. But did you not check to see if the rifle was there?

Mrs. PORTER. No, and when police came and asked if my husband had the rifle, I said yes, and he said, "Where is it?" I said, "It's in the garage." And when they opened the blanket, it was empty.

Mr. SAWYER. Would not the first thing that you would do logically, if the thought crossed your mind sufficient to upset you enough so that you went outside that he may have done it, was to check to see if that rifle was there or not?

Mrs. PORTER. Well, maybe it is logical thing to do, but I did not check the inside. If I went and check, the blanket was folded, I mean as kind of long like something was in it.

Mr. SAWYER. But you did check to see if the blanket was there?

Mrs. PORTER. Yes, but I did not check inside.

Mr. SAWYER. You did not check inside the blanket?

Mrs. PORTER. No.

Chairman. STOKES. The time of the gentleman has expired.

Mr. SAWYER. Mr. Chairman, I want to just make one correction, and that is that when I said General Walker was shot at on April 23, I misstated. It was April 10, which still is 5 days after that date.

Thank you.

Chairman. STOKES. The time of the gentleman has expired.

The gentleman from North Carolina, Mr. Preyer.

Mr. PREYER. Thank you, Mr. Chairman.

I would like to make one more effort in this area of the motive that Lee Harvey Oswald might have had in the assassination. I think the American public has found it easier to understand how it happened, and they have to understand why it happened.

I understand your answer yesterday to my question about what was his motive to in effect say that motivation is complex, and you were reluctant to say any one thing caused him to do this, but I would like to ask your help, not in saying any one thing caused him to do it, but whether you think one or more factors that I will mention to you might have had a bearing on it.

The broadest question I think in the American public's mind is, was it a politically motivated act or was it an intentionally personal act that came out of some twisted personal psyche. On the political motivation side, we have seen the photographs of Oswald holding a rifle in one hand, the Socialist Workers Party paper in the other, in a defiant pose. We also know about his efforts to shoot General Walker. Those two things, when you put them together, raise the question of whether his motive could have been to make himself a hero of the American left, a hero of the left-wing political movement in this country.

Do you in your personal opinion feel that that was a part of the motivation that made him assassinate the President?

Mrs. PORTER. Well, it is a quite difficult question to answer. I really do not know what to say about the motive. If you want my personal opinion about what I think, whether mental or political, I have to choose just the mental state of the person.

Mr. PREYER. So that you would discount the political motivation as part of his motive? On the personal side of it, we do know the puzzling fact that he appeared to like President Kennedy, and therefore there would not seem to be any political motivation in killing the President. But that it could have been that he simply

wanted to make himself important by killing someone important, that he simply wanted to kill the man at the top, no matter what the man at the top's political views were, whether right-wing or left-wing. Do you feel that this latter motivation was the most important part of his motivation, that is, some sort of personal desire to be self-important by killing someone important?

Mrs. PORTER. Well, the whole matter is so irrational it is very hard for us to even come up with any rational answers, but I would buy your statement that you made, the last one, about as long as somebody important, it probably does not matter what their political views are.

Mr. PREYER. Thank you, Mr. Chairman.

Mrs. PORTER. But this is just my opinion. I could be wrong. I would not know what a person thought about.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from the District of Columbia, Mr. Fauntroy.

Mr. FAUNTROY. I have no questions at this time, Mr. Chairman.

Chairman STOKES. The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman.

Mrs. Porter, just a couple of questions. In your response to a question from Congressman Edgar about the kind of treatment that Lee Oswald gave you, you described it as brutal treatment. Later in your testimony yesterday, when asked about the FBI, and their treatment of you, you also described their treatment of you as brutal. Those were the words you used. I am wondering if you would like to clarify what you mean by that. You described today brutal treatment as being hit by Lee Oswald.

Am I to understand that by the use of the word "brutal" in your description of how you were treated by the FBI that you are suggesting that you were also physically abused by the FBI?

Mrs. PORTER. I do apologize for my very poor vocabulary in the English language.

Maybe I did misuse the word in retrospect. Brutal, in the case of Lee it was a physical abuse. I do not know a better word to describe it. When somebody treats you harshly and hurt you emotionally or have——

Mr. DODD. How would you describe it?

Mrs. PORTER. Anyway, FBI did not hit me physically.

Mr. DODD. It was more the tone of the questioning and so forth?

Mrs. PORTER. Yes.

Mr. DODD. I realize it has been a long time. It has been 15 years, and I think anyone would understand that having total recall of every event or circumstance is a difficult thing for anyone to do. But there were several times yesterday in your testimony where, and I limit this to myself, where I thought that your recollection should be better. Your response to a couple of questions was that you did not recall, and I would like to raise those couple of questions again and ask you whether or not you cannot do a bit better on your recollection for us. OK?

Mrs. PORTER. I am just trying my best.

Mr. DODD. I understand that, and I appreciate it.

You destroyed, according to your testimony, these photos, some photos that we are talking about of Lee Oswald that you felt were incriminating to him, and in a question to you yesterday, you said

that you did not recall whether anyone had told you to destroy them or whether anyone was with you when you destroyed them.

I would like to ask you again, Mrs. Porter—it is a very important question—whether or not anyone suggested to you, advised you, assisted you in any way in the destruction of those photographs after the assassination of the President. Can you clarify your statement with regard to that point?

Mrs. PORTER. I do believe that all this happened very shortly after assassination, and many times I was, I mean I still was for a long time in a state of shock, and lots of even days in my memory are very—they are completely blacked out, and it is not that I do not want to contribute to your questions and answers.

Mr. DODD. But you do remember destroying them?

Mrs. PORTER. I do remember destroying, as a fact.

Mr. DODD. Do you remember how you destroyed them?

Mrs. PORTER. I think somebody reminded me that I burned it. That rings the bell.

Mr. DODD. How did you destroy them?

Mrs. PORTER. I do not remember where I was, who was around, absolutely nothing.

Mr. DODD. In your memory can you see yourself destroying them?

Mrs. PORTER. I see only—No, I do not.

Mr. DODD. So you do not know how you destroyed them?

Mrs. PORTER. No.

Mr. DODD. And you have absolutely no recollection?

Mrs. PORTER. Not today, I do not. I am not refusing to answer it, but I do not want to paint picture that it was not existing.

Mr. DODD. Is your recollection that you destroyed these photographs before or after the FBI came to visit you?

Mrs. PORTER. I do not remember. I had many visits.

Mr. DODD. Do you remember the FBI visiting you?

Mrs. PORTER. Yes, but it was so many visits, it was not just the one. It was every day.

Mr. DODD. The first?

Mrs. PORTER. The first FBI visit? I do not remember.

Mr. DODD. You do not remember whether you destroyed them before the FBI visit or after the FBI visit?

Mrs. PORTER. I do not remember. It was lots of officials. It was Secret Service and police, FBI all the time around.

Mr. DODD. All I am talking about now is the very first interview.

Mrs. PORTER. I do not remember. I do not remember who interviewed me the first time beside the police.

Mr. DODD. Let me go to one other point. You said that you recall that at least on one occasion prior to the assassination FBI Agent James Hosty came to your home and questioned you.

Mrs. PORTER. Yes.

Mr. DODD. All right, and you also recalled that your husband, Lee Oswald, was extremely upset about this visit of Hosty. You remember that as well, do you not?

Mrs. PORTER. Yes, I do.

Mr. DODD. But then all of a sudden you go blank on me. You do not remember whether or not Agent Hosty ever called on you again after the assassination or whether or not he was one of the

agents who questioned you after the assassination. Can you help us out at all in your recollection of that area?

Mrs. PORTER. Yes. My state of mind before the assassination was not just in a state of hazard as afterward. I do not remember Mr. Hosty's face at all, but I remember visit of his before assassination, and I think he came twice, because after the first visit Lee was upset and he told me if this man come back again, to take number of his license, his car's license, and that is what I did, so instead of you know, answering that he had been there once, logically it is twice before assassination. But I do not remember this man afterwards at all.

Mr. DODD. You have no recollection of him coming by your house again?

Mrs. PORTER. No.

Chairman STOKES. The time of the gentleman has expired.

Mr. DODD. Could I just have one additional minute, Mr. Chairman.

Chairman STOKES. Without objection, the gentleman is recognized.

Mr. DODD. I would like to go back again, if I could, Mrs. Porter, to your response to my questions about the stay in Rotterdam on your way from Russia. You stated today that you believed it was some sort of a boardinghouse.

Mrs. PORTER. Yes.

Mr. DODD. And if my memory serves me well, earlier statements with regard to this same incident, you had indicated that you stayed in the apartment, a private apartment in Rotterdam.

Mrs. PORTER. That is what I call boardinghouse. Is it a difference? It was like somebody's house.

Mr. DODD. It was someone's private dwelling, you did not pay to stay there?

Mrs. PORTER. Well, Lee did. I do not think it was for free. It was not a friend's house.

Mr. DODD. Which was——

Mrs. PORTER. The way I remember right now, what Lee told me that it was somebody, private person rent a room inexpensively.

Mr. DODD. It was a place where you rent a room, then?

Mrs. PORTER. I think so, yes. It looks like a private house, and you pay for the room, because the lady of the house prepared the meal.

Mr. DODD. And it was your understanding——

Mrs. PORTER. Brought to the room.

Mr. DODD. It was your understanding that there were prior arrangements made for you to stay in this place?

Mrs. PORTER. I think so, but by whom I do not know.

Mr. DODD. And you do not have any recollection of the people at all?

Mrs. PORTER. No.

Mr. DODD. Let me go back once more, just to the crossing of the border. Is it your statement that your husband, Lee Oswald, was with you when you crossed the border?

Mrs. PORTER. You mean from where, from Russia to—lots of borders were crossed between a few countries like Germany——

Mr. DODD. Let me make sure I have it correct. I think there was a crossing at Brest and another one at Helmstedt.

Mrs. PORTER. No, I think I said Brest, the last town between Poland and Russia.

Mr. DODD. And he was with you on both occasions?

Mrs. PORTER. Yes, sir.

Mr. DODD. There is no question in your mind about that?

Mrs. PORTER. Yes, sir, he was with me all the time.

Mr. DODD. Thank you, Mrs. Porter.

I have no further questions.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Ohio, Mr. Devine.

Mr. DEVINE. Mrs. Porter, taking you clear back to the time that you originally met Lee, this was in Russia, you said you did not know he was from America or from the United States until someone later told you; is that accurate?

Mrs. PORTER. Yes. During the few dances with him he spoke with accent, but I did not know he was from America.

Mr. DEVINE. But his Russian was sufficiently fluent that you did not necessarily think he was necessarily a foreigner to the Soviet Union?

Mrs. PORTER. He spoke with accent but lots of people in Russia do speak with accent. They don't speak Russian very well, they have different nationalities than Russians.

Mr. DEVINE. But his Russian was pretty good at that time?

Mrs. PORTER. It was pretty good, yes.

Mr. DEVINE. A moment ago when I was questioning you, I recited the route of Lee after the time that he left the Book Depository. I misstated his destination in the taxicab.

As I understand it, the evidence indicates that he hired the taxicab and returned to the area of his rooming house rather than Mrs. Paine's residence whereupon he apparently acquired the handgun, confronted Officer Tippit and then as he ran along he discharged cartridge cases and then ultimately disappeared into a heater where he was finally apprehended.

You would again assert for the record that you did not see Lee from the time he left you on the morning of the assassination ostensibly to go to work until you later saw him after the assassination in the jail?

Mrs. PORTER. That is correct, sir.

Mr. DEVINE. And you have no recollection of his having called you on the telephone from the jail after the time you visited him?

Mrs. PORTER. No.

Mr. DEVINE. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Tennessee, Mr. Ford.

Mr. FORD. Thank you, Mr. Chairman.

Mrs. Porter, why did you feel such strong loyalty to Lee to protect him, even to the point of giving misleading testimony, when during the great majority of your marriage he was brutal and violent to you?

Mrs. PORTER. You ask me why?

Mr. FORD. I am asking why did you feel such strong loyalty to see that you would give misleading testimony at different times?

Mrs. PORTER. I did not have anybody in this country but Lee.

Mr. FORD. Did not what?

Mrs. PORTER. I did not have anybody in this country but my husband. I do not know why I had this sense of loyalty or whatever. It is just me.

Mr. FORD. Is that why at different times you misled or gave misleading testimony to the agencies investigating the death of the President? Because you had no one else in this country but Lee, is that the reason?

Mrs. PORTER. It is not only that reason. It is lots of reasons together. You don't know why you make decisions. Maybe it is my age, maybe, maybe loyalty to Lee, maybe fear, but it is all complex feelings and that is the decision I had to make. I don't mean that that was the right decision always, but sometimes you do make wrong decisions.

Mr. FORD. Considering his actions and personality, did you ever think that Lee might be mentally unstable or ill?

Mrs. PORTER. Well, I was only 21 when he died. I was not mature enough to recognize the symptoms, but I don't think anybody in their right mind can commit crimes like that. Right now I do assume the person was ill.

Mr. FORD. Did you ever seek any help for Lee?

Mrs. PORTER. Well, at that time I was not mature enough to recognize the symptoms so I was not aware of it.

Mr. FORD. You recognized it, but you did not seek help for him?

Mrs. PORTER. No, I did not recognize the state of his mind then. It never occurred to me then that Lee was sick. I did not come to that conclusion then in my life.

Mr. FORD. But his actions and his personality were sort of strange?

Mrs. PORTER. Yes.

Mr. FORD. Mr. Chairman, I have no further questions.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. Thank you, Mr. Chairman.

Mrs. PORTER, when you destroyed the photographs, did it not occur to you that there would be negatives around somewhere and that you ought to look for those and destroy them too?

Mrs. PORTER. No, it did not occur to me.

Mr. FITHIAN. Has it occurred to you since as to what happened to the negatives, since clearly we have had three different pictures there would have to be three different negatives somewhere? The Warren Commission reports say only one, and we will deal with that at another time, but do you know what happened to any of the negatives?

Mrs. PORTER. I assume that the government has them.

Mr. FITHIAN. I am sorry?

Mrs. PORTER. When they confiscate Lee's belongings, I assume they got the negatives from there.

Mr. FITHIAN. You did not burn the negatives?

Mrs. PORTER. I don't remember, recall, doing that.

Mr. FITHIAN. Let me turn quickly to another set of questions. Did Lee have any Cuban friends in New Orleans?

Mrs. PORTER. Not that I know of.

Mr. FITHIAN. Did he ever mention any Cubans that he might have had contact with?

Mrs. PORTER. No.

Mr. FITHIAN. Did he ever talk to you about his political activities?

Mrs. PORTER. Excuse me. May I correct myself? When he was arrested for this Fair Play for Cuba, he did mention that he met some Cubans on the street or that is the one who gave him the pamphlets, but it was no specific names mentioned.

Mr. FITHIAN. So he did talk to you about passing out pamphlets?

Mrs. PORTER. Yes, he told me about that.

Mr. FITHIAN. Did he talk to you about speaking about Cuba on the radio? That would be a little unusual that a person would speak on the radio.

Mrs. PORTER. Yes, he told me.

Mr. FITHIAN. He mentioned that to you?

Mrs. PORTER. Yes.

Mr. FITHIAN. Did he mention the formation of the Fair Play for Cuba Committee?

Mrs. PORTER. Yes, until I discovered that he was the only one who—

Mr. FITHIAN. Did he mention lectures on Cuba and Communism to a group of Jesuit priests?

Mrs. PORTER. Yes.

Mr. FITHIAN. Did he ever mention the CIA?

Mrs. PORTER. No.

Mr. FITHIAN. At any time?

Mrs. PORTER. Not that I recall.

Mr. FITHIAN. Now, turning to the time that you lived in the Dallas area. Did he have any Cuban or Spanish-speaking contacts in Dallas?

Mrs. PORTER. I don't think so. I don't know any of them.

Mr. FITHIAN. Do you recall any of Lee's friends in Dallas or in New Orleans ever referring to him as Leon rather than Lee?

Mrs. PORTER. No.

Mr. FITHIAN. The other area I wanted to get some additional information on is the circumstances under which you met George DeMohrenschildt.

Mr. DeMohrenschildt is a very aristocratic, wealthy individual, educated, rather from a different walk of life from Lee. Can you give us any indication as to how the two gravitated together, they are so very, very different?

Mrs. PORTER. No, because Lee was exposed to lots of Russian people, you know, because of me being Russian background that is the friends we had, and apparently from all of them he liked George DeMohrenschildt the best.

Mr. FITHIAN. Can you tell me your own recollection of the first time you met Mr. DeMohrenschildt?

Mrs. PORTER. I don't remember how we have been introduced, by whom or where. I think the way I remember right now, I think it was somebody's luncheon and there were lots of people present and they were one of them.

Mr. FITHIAN. Did you grow to know George DeMohrenschildt well? Of all Lee's friends, did you know him better than the rest?

Mrs. PORTER. Well, I like him very well. I cannot describe his character maybe very completely. But well enough to like him very much.

Mr. FITHIAN. Were there many, many contacts between Mr. DeMohrenschildt and Lee and you?

Mrs. PORTER. They visited us occasionally. He stopped by just to say hello for a few minutes if he is in the area.

Mr. FITHIAN. By happenstance, did he ever stop by when Lee was not there?

Mrs. PORTER. By our house? He did stop once, yes.

Chairman STOKES. The time of the gentleman has expired.

Mr. FITHIAN. Could I have just one additional minute, Mr. Chairman?

Chairman STOKES. Without objection the gentleman is recognized.

Mr. FITHIAN. Do you recall Mr. DeMohrenschildt taking you anywhere apart from the time that he would have taken you and Lee together somewhere?

Mrs. PORTER. I don't remember that. When I said that he came by once by himself, it was somebody else with him, some gentleman. He said he had been in the area and he wanted me to meet so and so, it was some businessman or business associate of his but I don't know who it was. I do not recall the gentleman's name or the face.

We talked for 2 or 3 or 5 minutes. He didn't even stay for coffee. Then he left and that was it.

Mr. FITHIAN. Do you remember him taking you to visit the Bruton's, Admiral Bruton and his family?

Mrs. PORTER. No. I read it somewhere about that, but I don't recall the incident at all.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Pennsylvania, Mr. Edgar.

Mr. EDGAR. Thank you, Mr. Chairman.

Mrs. Porter, let me draw your attention to the pictures one last time. You will see that there are three separate pictures up there. Did you take those pictures?

Mrs. PORTER. Yes, I did. I don't know how many, two or three.

Mr. EDGAR. I had an occasion to ride in the back alley where those pictures were taken and look at that area. It is a little bit changed, but to see that area and to get a visual siting of what the backdrop is, if you would look at that picture I would just like to ask you a question: Why would someone like yourself who does not like rifles, guns, around the house, agree to take a picture of Lee in that setting? Two of the pictures are clearly with a rifle in his hand and one of the pictures is with his rifle and his handgun. Why did you take that picture?

Mrs. PORTER. I just had been forced to. Instead of being physically abused by Lee, I just did it what he asked me to or told me to.

Mr. EDGAR. Why did he want you to take that particular pose?

Mrs. PORTER. Pardon me?

Mr. EDGAR. Why did he want you to take that particular pose that particular setting, with the rifle and the documents in his hand?

Mrs. PORTER. His main explanation was that this newspaper that he has in his hand, that that is why he wanted to take the picture, or this newspaper or something like that.

Mr. EDGAR. Was he going to send a copy of this picture to the newspaper and hope that it got printed?

Mrs. PORTER. I don't know, but he said something to do with the newspapers.

Mr. EDGAR. Was he going to put this picture on a brochure for some of his activities?

Mrs. PORTER. I don't recall why, more than what I said.

Mr. EDGAR. If you look at the picture carefully, it is taken in the daytime, in full bright sunlight. Was he at all nervous that a neighbor would come out of his house or somebody would come down through the alleyway?

Mrs. PORTER. I do believe it was a kind of weekend, a Saturday or Sunday, and the neighbors were gone.

Mr. EDGAR. This picture was taken in Dallas?

Mrs. PORTER. Yes.

Mr. EDGAR. And it was taken when?

Mrs. PORTER. I think shortly after noon or noon. It was not early in the morning and not very late at night. It was during the daytime.

Mr. EDGAR. What time of year was it taken?

Mrs. PORTER. In the springtime I remember. It was warm at the time.

Mr. EDGAR. We have the one that had a notation on the back which is dated April. Now the picture would have had to be taken prior to that April in 1963 so that would have had to be January, February or March of 1963.

Is that not correct?

Mrs. PORTER. Well, it could be in April.

Mr. EDGAR. Except as I understand it, it is the fifth day of April that is notated on the back.

Mrs. PORTER. I am sorry, I am not expert. I am not trying to prove something, but this print you get very quickly in Texas.

Mr. EDGAR. You can tell it is a spring picture because he has a short sleeve shirt on.

Mrs. PORTER. I am just telling you what I recall, that it was spring. What picture shows I don't know.

Mr. EDGAR. You said yesterday something that intrigued me. When we were trying to figure out who wrote the Russian inscription on the back, you said, well, it doesn't look like my handwriting. I think you said, "It sounds like me."

Could you clarify that for me?

Mrs. PORTER. Yes.

Well, I can be very sarcastic sometimes. I am known to have a sharp tongue when I get angry. So if I describe something, it will sound like, I mean that the tone of the statement could be like mine.

Mr. EDGAR. Mr. Chairman, I ask unanimous consent for two additional minutes.

Chairman STOKES. Without objection the gentleman is recognized.

Mr. EDGAR. Continue, it sounds like you.

Mrs. PORTER. Sarcasm of the phrase would be.

Mr. EDGAR. Sarcastically you are saying, "hunter for fascist" or "hunter of fascist." Which is it, hunter of or for?

Mrs. PORTER. Of. I probably misinterpreted before the same phrase.

Mr. EDGAR. What is a fascist?

Mrs. PORTER. Fascist, well, I think it is the party in Germany. In my mind it is—has something to do with the war, aggressive people, military people.

Mr. EDGAR. Was it a joke? Was that sarcastic expression a joke?

Mrs. PORTER. I don't know. It sounds like it.

Mr. EDGAR. Just one final series of questions very quickly.

Mr. Fithian was asking you about your relationship with Mr. DeMohrenschildt and the difference between his life style and your life style. Did you see Mr. DeMohrenschildt after the assassination?

Mrs. PORTER. Not shortly after. I did see him I think on two occasions afterwards.

Mr. EDGAR. What were the purposes of those two occasions?

Mrs. PORTER. Well, I think it was a Russian Easter party once and he was present. I think once I attended a Russian movie at the campus and lots of Russians were present there, too, and he was one of them.

Mr. EDGAR. In the Dallas area at the time of the assassination there were a number of clubs and organizations of Russian people, were there not?

Mrs. PORTER. No. No, it is a social gathering.

Mr. EDGAR. But there was a social group of people who sent out cards and said, come to a movie or come to a luncheon or come to a—

Mrs. PORTER. No, it was not organized that way.

Mr. EDGAR. How did you know that the Russian community was getting together to do a particular thing?

Mrs. PORTER. Well, occasionally they do this, you know, the church or something like that. I think maybe somebody called me and invited me to go.

Mr. EDGAR. Could you have met Mr. DeMohrenschildt at that kind of setting?

Mrs. PORTER. I don't think so. I think it was a dinner, a get-together, or something like that.

Mr. EDGAR. Just finally on the two occasions that you met Mr. DeMohrenschildt after the assassination, did you have occasion to talk with him about Lee Harvey Oswald and about the assassination?

Mrs. PORTER. I don't recall. I don't think it was the right atmosphere or place to discuss it in detail. It was more like a polite hello, you know, hi, how are you, and things like that.

Mr. EDGAR. But he did not volunteer that he had a picture from Lee?

Mrs. PORTER. No.

Mr. EDGAR. He didn't share with you any information at that time?

Mrs. PORTER. No, sir.

Mr. EDGAR. Did he offer to help you out at all financially?

Mrs. PORTER. I think he did.

Mr. EDGAR. Did he give you any money.

Mrs. PORTER. I don't recall, but they were very generous about inviting us to their house and sometimes bring something over. They were helpful. I don't mean like you try to say that he gave me a big sum amount of money.

Mr. EDGAR. Not necessarily a big sum of money, but did he assist you after the assassination?

Mrs. PORTER. After the assassination, no.

Mr. EDGAR. But prior to the assassination he might have helped you out financially?

Mrs. PORTER. Maybe he buy box of candy or some toy for a child, that is the things I am talking about.

Mr. EDGAR. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

Mrs. Porter, this morning you told me that you and Lee did not have a telephone while you were staying in Russia; is that correct?

Mrs. PORTER. Yes, sir.

Chairman STOKES. Did you have access to a telephone at any time?

Mrs. PORTER. Yes. They have public phones and my aunt and uncle had a telephone at work. So if I wanted to call somebody, I could make a connection.

Chairman STOKES. Where was that phone?

Mrs. PORTER. They have public phones. My aunt and uncle had a telephone.

Chairman STOKES. Located near your apartment there?

Mrs. PORTER. She lived a few blocks away. Like two blocks.

Chairman STOKES. She had a telephone?

Mrs. PORTER. Yes.

Chairman STOKES. I see. So whenever you or Lee needed a telephone, you could use hers?

Mrs. PORTER. Yes, sir, and they had a public phone downstairs, too.

Chairman STOKES. Now, I asked you about an incident at the train station involving a KGB agent this morning and you could not recall that.

Mrs. PORTER. No; I don't.

Chairman STOKES. In Priscilla Johnson MacMillen's book, 'Marina and Lee', page 187, it says:

The Oswalds spent their last night in Minsk at Pavel's. The next day, May 22 or 23, they boarded the train for Moscow. Russian fashion their closest friends, including Pavel and all the Zigers, came to the station to see them off. But even there they noticed that they were being watched by a man who was standing, half-hidden, behind a pillar.

"Listen in if you like," Eleonora Ziger practically spat in his face. "We have no secrets here."

Her sister, Anita, added: "I simply loathe people who eavesdrop."

Marina kept glancing anxiously around the station looking for Ilya and Valya. Finally, she saw them standing way off by themselves in a corner. Their faces were forlorn and they looked as if they were fearful of being seen by the KGB.

Marina hurried over to them. "Why didn't you join us?" "We didn't want to be in the way," Valya said. She turned to Alik: "Take care of Marina. She has nobody now but you." She was on the verge of tears.

Having heard that, does that refresh your recollection of what you told Miss Johnson?

Mrs. PORTER. This is the fact that Miss Johnson did get from me many years ago. I do not remember right now the man and where he was standing. I remember where my aunt and uncle were standing, but that is correct. If it is in the book, it is correct, yes.

Chairman STOKES. I think I have just one more further question: In reply to Mr. Preyer's questioning of you this morning with regard to motivation for Lee doing this type of thing, you gave some indication that you could agree that it probably was done just to perhaps make himself a bigger man.

But you did know by virtue of the General Walker experience that he was capable of killing for political reasons, did you not?

Mrs. PORTER. I still really did not ever consider it, you know, that that was really that political. It is a political figure, Mr. Walker was. He will be well known if he will be killed, I mean, he is known to the public. He gave me his reasons for shooting him as political. Maybe at this point it was somewhat. Maybe he tried to make Russian explanation to me, but still it was rational enough to make a statement that the man was sick.

Chairman STOKES. Let me just refer you to a couple of things: One, he said to you with reference to General Walker that he was worse than Hitler and he should be killed, had he not said that?

Mrs. PORTER. Yes, he made the comparison.

Chairman STOKES. And then let me just make reference to a statement that you gave us in the deposition we took from you on August 9. We asked you this question with reference to what happened when he came back to the house with you.

The question was: What did he say when he returned? You said, well, he turned the radio on and he was very pale and he was listening to the news, changing from station to station. I asked him what it was all about. He said that he tried to shoot General Walker. I told him, how dare you take somebody's life. You should not do things like that. I mean, you have no right to do it.

He said, "Well, if somebody shot Hitler at the right time, you would do justice to humanity. So since I don't know anything about the man, I should not talk about it."

Is that what he said?

Mrs. PORTER. Yes, sir.

Chairman STOKES. At the point he said, "So, since I don't know anything about the man, I should not talk about it," he was talking about you?

Mrs. PORTER. Of me not knowing anything, right.

Chairman STOKES. So from that statement to you, then, you then did know that he was capable of killing for political reasons; is that correct?

Mrs. PORTER. Well, I still think the reasons, well, I am sorry, but anytime if a person is capable of killing somebody, he is not a stable-minded person whatever the reasons are. Maybe it is political excuse, I don't know. I still don't think it is just strictly political.

Chairman STOKES. Thank you, Mrs. Porter.

Mrs. Porter, at the conclusion of the witness' testimony before our committee, that witness is entitled to take five minutes in order to in any way explain or comment in any way upon the

testimony they have given our committee. You may amplify or expand upon it in any way that you so desire.

On behalf of the committee, I would at this time extend to you 5 minutes for that purpose.

Mrs. PORTER. I just want to thank you for listening. I don't have any comments to add.

Chairman STOKES. Does counsel desire any time to make any statement?

Mr. HAMILTON. Mr. Chairman, I do not, but I would like to thank the committee and the staff for the courtesies extended to Mrs. Porter. I would also like to thank the United States Marshal and the Capitol Police for their extremely professional handling of the circumstances surrounding her appearance here.

Chairman STOKES. We would like at this time also to thank Mr. Hamilton of the D.C. Bar Association for having provided counsel for Mrs. Porter while she was here. We thank both of you for appearing. At this time you are excused. All persons are requested to remain in their seats until Mrs. Porter has left the room.

The Chair recognizes Professor Blakey.

NARRATION BY G. ROBERT BLAKEY, CHIEF COUNSEL

Mr. BLAKEY. Thank you, Mr. Chairman. One of the most publicized issues to emerge in the investigation of the Kennedy assassination has to do with the authenticity of the photographs of Lee Harvey Oswald with a holstered pistol strapped to his waist, holding a rifle in one hand, and in the other copies of *The Militant* and *The Worker*, both Communist publications. These photographs collectively have come to be known as the backyard photographs.

Oswald himself, when shown the pictures at the Dallas Police Headquarters after his arrest, insisted that they were fakes, and over the years many critics have argued similarly. No doubt, the controversy was stimulated by the publication on the cover of *Life* in 1964 of a copy of one picture retouched to enhance the quality.

If the backyard photographs are valid, they are highly incriminatory of Oswald, and they tend strongly to corroborate the basic story told by Marina Oswald. If they are invalid, how they were produced poses far-reaching questions in the area of conspiracy for they evince a degree of technical sophistication that would almost necessarily raise the possibility that more than private parties conspired not only to kill the President, but to make Oswald a patsy.

Here, then, is a brief history of the backyard photographs.

In the early afternoon of November 23, 1963, Dallas detectives obtained a warrant to search the home of Ruth Paine in Irving, Tex., where Marina Oswald had been living. A thorough search of the premises was conducted. It concentrated primarily on a garage in which possessions of the Oswalds were stored.

Among the belongings, Detective Guy F. Rose found a brown cardboard box containing books, papers, and photographs. There were at least two prints of Oswald holding the rifle, each showing him in a slightly different pose, and there was at least one negative from which one of the prints had been made. The items were taken to the Dallas Police Headquarters.

On the evening of November 23, Captain Will Fritz first showed Oswald an enlargement of the picture later designated by the Warren Commission as CE 133-A. According to officers present, Oswald denied repeatedly that he had ever seen the photograph and claimed that someone had superimposed his head on another's body. Oswald was then shown the print later designated as CE 133-B, which he also claimed was a trick photo.

Marina Oswald was subsequently questioned by the FBI about the photos. She said that they were taken at the Oswald home on Neeley Street in Dallas, in the backyard. But Marina gave two different versions of when the pictures were taken. She first told the FBI it was in late February or early March 1963. Her testimony to the Warren Commission reflected the same recollection.

Nevertheless in an FBI interview made after her initial appearance before the Warren Commission she said that the first time she ever saw the rifle was toward the end of March. She recalled taking the photos 7 to 10 days thereafter, in late March or early April.

Other evidence available to the Warren Commission supported her later version. A rifle and a revolver were shipped to Oswald from different mail order houses on March 20. The left-wing newspapers Oswald is holding in the picture were dated March 11 and March 24, and were mailed on March 7 and March 21, respectively, both by second class mail.

According to postal authorities, both newspapers would have arrived in Dallas by March 28. In addition, Marina claimed she remembered taking the photos on a Sunday about two weeks before Oswald allegedly took a shot at General Edwin Walker on April 10. The Commission therefore concluded from all its information that the photos were probably taken on March 31, 1963.

Lyndal L. Shaneyfelt, an FBI photographic expert, analyzed the two prints, the negative, the Mannlicher-Carcano, and an Imperial Reflex camera that Marina testified she used to take the pictures.

Shaneyfelt testified as to the results of his analysis to the Warren Commission:

One, the photos were taken by the Imperial Reflex camera. Each camera has unique irregularities that are reflected on the margins of negatives made by that camera. Shaneyfelt determined that the margin irregularities of the negative of 133-A were identical to those of a negative which he made by using the same Imperial Reflex camera.

Two, the photos were not composites. Shaneyfelt said he could find no indication that they had been tampered with.

Three, the rifle in the photos was probably the Mannlicher-Carcano found in the Book Depository. Shaneyfelt photographed the rifle, duplicating as best he could its position in the photo and the lighting, and found the configurations matched. He also found a notch in the stock of the rifle that appears, albeit faintly, on the rifle in the photos. He did say, however, that he could not find enough peculiarities to state categorically that the rifles were identical.

The backyard photo appeared on the cover of the February 21, 1964 edition of Life, which had purchased the rights to publish it from a man named James Martin, who was at that time Marina's

business manager. Several other copies appeared in The New York Times, Detroit Free Press, and other news publications. Shaneyfelt told the Commission that any apparent variations, particularly with respect to the configuration of the rifle, were caused by re-touching, a common practice in the printing of pictures at that time in the news media.

Despite the efforts of the Warren Commission to settle questions about the two pictures, Warren Commission critics have refused to let the matter rest. They have persisted in doubting their authenticity, charging that they are, in fact, composites.

Some critics cite a horizontal line across Oswald's chin as evidence that his head was grafted onto another person's body. Others claim that Oswald's chin structure does not correspond to the shape depicted in the photographs. Critics also contend that the heads are identical in both pictures, whereas the length of the body differs. Finally, the critics have alleged that the shadows cast by the nose are inconsistent with those cast by the body.

Mark Lane for instance, indicated in his "Rush to Judgment" that "an examination of the picture * * * tends to raise doubts as to its authenticity." He also argued that the Warren Commission relied on insufficient evidence to conclude that the rifle depicted in the backyard photographs was the rifle recovered from the Book Depository.

He states:

The Commission had only one expert on the question—Shaneyfelt—and he refused to make an identification. Yet the Commission concluded that "the rifle shown in these pictures is the same rifle which was found on the sixth floor of the Depository Building on November 22, 1963.

Sylvia Meagher, in her "Accessories After the Fact," states another critic's view:

It is not possible to determine whether the photograph is genuine or forged, but I do conclude that the Commission's procedures were so loose and its judgment so oblivious in considering this matter that it would have been possible to introduce specious evidence and have it accepted as authentic.

Marina Oswald, in addition to giving two different versions of when the backyard pictures were taken, gave different versions of the number of pictures taken. At first she testified that she took one picture. She later testified that she took two pictures.

In addition, Marguerite Oswald, Oswald's mother, testified that soon after the assassination she and Marina destroyed yet another picture, in which Oswald was holding the rifle over his head with both hands. No copy of such a photograph has ever been uncovered.

In the course of the select committee's investigation, it obtained an additional photograph of Oswald holding the rifle in a pose different from Commission exhibit 133-A or 133-B. This photograph, a first generation print, was given to the committee on December 30, 1976, by Mrs. Genevieve Dees of Paris, Tex. According to Mrs. Dees, this print was acquired by her former husband, Roscoe White, now deceased, in the course of his employment with the Dallas police at the time of the assassination. This recently discovered photograph has been designated 133-C.

The committee obtained another first generation print of Commission exhibit 133-A on April 1, 1977 from the widow of George

DeMohrenschildt, Jeanne. In the manuscript of DeMohrenschildt's book, which he was writing at the time of his death in 1977, he stated that he and Jeanne found the photograph in February 1967 among personal belongings they had stored in Dallas before departing for Haiti in May, 1963.

Two additional first generation prints, one of 133-A and one of 133-C, were also obtained from former Dallas Police Detective Richard S. Stovall on April 14, 1978. Stovall was among the police officers who discovered the backyard photographs during a search of the Paine premises on November 23, 1963.

The 1978 BBC television documentary entitled "The Assassination of President Kennedy * * * What Do We Know Now That We Didn't Know Then" includes an interview with British forensic photography expert, Malcolm Thomson. At the request of the British Broadcasting Corp., Mr. Thomson examined copies of two of the backyard photographs. He found that they were fakes.

With your permission, Mr. Chairman, it would be appropriate now to show the BBC interview to illustrate how concern over the photographs has drawn public attention.

Chairman STOKES. You may proceed.

Mr. BLAKEY. Could the lights be turned down please?

[The documentary was shown.]

Mr. BLAKEY. Mr. Chairman, the committee has also asked Mr. Jack D. White to appear as a witness today. Mr. White has studied the backyard photographs for over 10 years.

Mr. White received a B.A. in journalism major, history minor from the Texas Christian University in 1949. Currently, he is vice president of Witherspoon and Associates, Ft. Worth's largest advertising and public relations firm.

Mr. White has served with Witherspoon in various capacities for over 25 years. He has done extensive work in all areas of reproduction, including photographic, mechanical, printing, and the graphic arts.

Mr. White has lectured in the United States, widely on the subject of the backyard photographs.

Mr. Chairman, I would note that Mr. White's testimony today will be split into two parts: The first dealing with the photographs, and the second in relation to the rifle.

But it would be appropriate at this time, Mr. Chairman, to call Mr. White to testify on the backyard photographs.

Chairman STOKES. The committee calls Mr. White.

Sir, please stand and be sworn.

Do you solemnly swear the testimony you will give before this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

TESTIMONY OF JACK D. WHITE

Mr. WHITE. I do.

Chairman STOKES. Thank you. You may be seated.

The Chair recognizes counsel, Mr. Genzman.

Mr. GENZMAN. Thank you, Mr. Chairman.

Mr. White, will you state your full name and occupation for the record?

Mr. WHITE. Jack D. White, vice president of Witherspoon and Associates, an advertising and public relations firm.

Mr. GENZMAN. Will you please refer to the exhibits marked 179 and 180 which were previously entered into the record. Can you identify them?

Mr. WHITE. These are known as the backyard photos. Lee Harvey Oswald supposedly had them taken by his wife, Marina. They are Warren Commission exhibits 133-A and 133-B, and one which surfaced in 1975 during the Church committee hearings, which is marked 133-C.

Mr. GENZMAN. Have you analyzed any of these photographs?

Mr. WHITE. Yes; over a period of about 5 years.

Mr. GENZMAN. What led you to do this analysis?

Mr. WHITE. Well, in 1964 I read the Warren Commission report and I saw where Lee Harvey Oswald said these photos were fakes. Being in graphics myself, I thought I could do a good job of analyzing them.

Mr. GENZMAN. How much time did you spend on your analysis?

Mr. WHITE. It was over a period of about 5 years. I completed it probably about 3 years ago.

Mr. GENZMAN. Mr. White, what was your method of analysis?

Mr. WHITE. I utilized various methods. First of all was just scrutiny, you might say—just looking at the photos to see how things in one photo compared with things in the other photos.

I also made measurements. I made photocopies and printed them in various sizes. I made transparencies which I overlaid one over the other to make certain comparisons, and things of that sort.

Mr. GENZMAN. Did you scrutinize various features in the photographs?

Mr. WHITE. Yes, in particular the face and the background.

Mr. GENZMAN. Did you scrutinize the body?

Mr. WHITE. Yes.

Mr. GENZMAN. What opinions have you formed about the backgrounds of the photographs?

Mr. WHITE. I believe the backgrounds in the three photographs you see here are virtually identical. I think they were all taken from a single camera viewpoint. The backgrounds would have had to be either a single photograph originally, or else the camera for all photographs would have had to be on a tripod or some other support for stabilizing the camera in one position.

Mr. GENZMAN. What opinions have you formed about the heads in the photographs?

Mr. WHITE. The heads in A and B are identical to one another with the exception of the lip area, which shows strong signs of retouching. I was not able to adequately compare the head on C to A and B because I did not have an adequate quality print at the time I made my comparisons.

Mr. GENZMAN. Thank you.

What opinions have you formed about the heads in relation to the bodies?

Mr. WHITE. When you make the heads in A and B an identical size, the bodies are different lengths. In fact, all three bodies are slightly different lengths than each other if you make the heads the same size.

For instance, if you make the heads the same size, you might say that A has a normal length body, B has a longer body, and C has a shorter body.

Mr. GENZMAN. Did you determine whether the heads and the bodies are of the same individual?

Mr. WHITE. I did not do any extensive analysis of the bodies. Some critics believe these are three different bodies. I have nothing to say about that, but I do believe that the heads on A and B are the person called Lee Harvey Oswald, down to a point right below the lips. In fact, the face is a single photograph. It is not two different photographs of the same individual. It is a single photograph.

Mr. GENZMAN. Did you determine whether the bodies were originally on the background of the photographs?

Mr. WHITE. In my opinion, the bodies have been superimposed on the background. There is some evidence of this. I can't prove it, but that is my opinion.

Mr. GENZMAN. Based on your findings, what is your conclusion about the backyard photographs?

Mr. WHITE. Well, just as Oswald said, I think they are fakes.

Mr. GENZMAN. Do you regard these fakes as sophisticated or crude?

Mr. WHITE. They are extremely sophisticated, although they are not so sophisticated that the fakery cannot be detected. I deal in the graphic arts area all the time in my job. We frequently deal with photographers, commercial artists, people who do this sort of work.

If we were to undertake to fabricate a photograph like either of these, we would go to an expert to do it. We would get somebody who was an expert photographer, an expert artist, or a commercial art studio, because it is obvious that to fabricate the head onto the body and then the body onto the background, several sophisticated techniques must be used, including a matting process.

Matting, for the people who don't know about graphics, involves the use of masks and a pin-register system so that you can exactly superimpose something onto a background without the superimposition being noticeable.

What you do is take the figure that you are going to superimpose on the background, and you cut a mask around this figure. You make a positive and a negative of this, using one of them to outline the figure and the other to knock out of the background the area in which you want to print the figure. It is a very sophisticated procedure. It is not something that the average person could do. These were not made, in my opinion, by somebody with just a pair of scissors and some paste.

Mr. GENZMAN. Do you have an opinion as to whether Oswald hypothetically could have made these fakes?

Mr. WHITE. Even though he said to Will Fritz that he knew something about photography and could demonstrate how these photos were made. I don't think he could have acquired the expertise to fabricate them in the few months he worked at Jaggars Chiles-Stovall in Dallas.

Mr. GENZMAN. Why do you think these fakes were made?

Mr. WHITE. It is fairly obvious after the fact that they were made to implicate Oswald in the alleged assassination by tying him to the assassination weapon.

Mr. GENZMAN. Mr. White, did you testify earlier that each backyard photograph has an identical background?

Mr. WHITE. That is my belief.

Mr. GENZMAN. At this time would you please refer to the exhibit marked JFK F-391.

Mr. Chairman, I would ask that JFK exhibit F-391 be entered into the record.

Chairman STOKES. Without objection it may be entered.

[The information follows:]



Mr. GENZMAN. Mr. White, would you identify this exhibit?

Mr. WHITE. This is some art that I prepared using photographs 133-A and 133-B. Let's for a moment look at the lower portion, if you will start at the bottom. The brown picture that you see on the exhibit is a portion of 133-B. The red picture is the corresponding portion of 133-A, which is a red transparency overlaid over the brown picture.

After printing these photographs to the same exact size in the darkroom and then having the red transparency made of A and laying it in register over photograph B, I then slipped a piece of white paper under the red transparency to block out the brown picture underneath.

If you will notice, where the red corresponds to the brown along the edges of the slip of white paper, you will see that every portion of the background matches perfectly. Starting on the left of the picture, you see that the shadows are a perfect match, then the post is a perfect match. All the fence boards are a perfect match. When you get to the corner of the garage it is a perfect match. Even the branches of the bush match perfectly.

Then to go to the center portion—which is at the upper part of—

Mr. GENZMAN. Mr. White, could you go over to the exhibit and point out these matches?

Mr. WHITE. All right.

What I was referring to here—notice that the shadows all line up in one picture to the other. The post lines up. The fence palings all line up. The edge of the garage lines up. The branches of the bush all line up.

Going to the upper part of the picture, again 133-B is in brown and 133-A is in red, and I have inserted a slip of white paper under the red to block out the brown. Notice here the steps line up perfectly. The post lines up. This shadow lines up.

Coming across, this post lines up perfectly. The edge of the garage lines up here perfectly. Even the shadow along from the edge of the roof of the garage lines up perfectly.

So I think we can safely say that the background of 133-B, which is in brown, is identical to the background of 133-A, which is in red. They have to be from a single camera viewpoint. If the camera moved side-to-side or up and down, you would not have such a match because you would have a different perspective.

Mr. GENZMAN. Mr. White, are the backgrounds exactly the same?

Mr. WHITE. There are a few very minor discrepancies. For instance, between A and B—it doesn't show here but over here it does—there is one reference point in the background which is so minutely out of adjustment that either the camera moved upward a fraction of an inch or downward a fraction of an inch between the two. But there is absolutely no side-to-side movement of the camera between the three pictures.

If you will notice right here, there is a highlight on the corner of the house just beyond this stairway post. It is a bright sunlit highlight on the corner of the house. It is exactly the same size here, here and here in all three photos. If the camera had moved side to side or up and down significantly, you would not have the

exact same foreground to background relationship between the post in the foreground and the corner of the house in the background. A very slight difference in movement would completely change the angle of perspective and you would not see three identical high-lights.

Mr. GENZMAN. What might have caused the slight discrepancy which you mentioned?

Mr. WHITE. I can only think of two things and this is only speculation, of course. Being an artist myself, I recognized with everything else virtually identical in the picture, an artist fabricating this picture could have manipulated the background of this photograph A—or B for that matter, but I think it was A. All the area that is very slightly moved has straight edges around it—the stairway, the post, the fence and this post. It would be a very simple matter with a razor blade to slice this along these straight lines and move it up or down.

Now, the other possibility is, and it perhaps is a little more likely than that one, that instead of this being a single identical, original background print, there could have been more than one background print, but they all had to be taken from a fixed point like a tripod, or perhaps a camera resting on a car door or in the alleyway.

If the camera was on a tripod, all the backgrounds would be identical so it would not make any difference how many they took. But if there was somebody driving through the alleyway and they paused long enough to rest the camera on the car door, then I can understand how the camera did not move at all side to side and therefore all of these reference points are identical, but possibly the camera tilted a fraction of an inch up or down in the taking, and therefore you might have had a different reference point here. This reference point I am referring to is the roofline of the house in the distant background.

This post in the foreground, as related to the roofline in the background, would have varied widely if the camera had moved any significant distance. In fact, over the years researchers have taken thousands of photographs of this same situation.

After viewing many of these photographs, including some made by the Dallas Police and FBI, as well as by numerous private researchers, and even though these people tried to find the exact same viewpoint of this photograph; by checking the foreground and background relationships I determined that no one could find this exact same spot. I have yet to see a photograph that had this reference point the same and that reference point the same, even though people were trying to find the location from which this photograph was made.

Mr. GENZMAN. Mr. White, did you testify earlier that the heads of these individuals in the backyard photographs are identical?

Mr. WHITE. Yes.

Mr. GENZMAN. In making this determination, which photographs did you study?

Mr. WHITE. I studied 133-A and 133-B, because up until 1975 I did not have 133-C, and when I did, it was only a magazine reproduction so I did not have a very good quality print to work with.

Mr. GENZMAN. At this time would you please refer to the JFK exhibits marked as F-270, F-392, and F-393.

Mr. Chairman, JFK exhibit F-270 was previously introduced into the record. I would ask that JFK exhibits F-392 and F-393 be entered into the record at this time.

Chairman STOKES. Without objection, they may be entered in the record at this point.

[The information follows:]



JFK EXHIBIT F-392



JFK EXHIBIT F-393

Mr. GENZMAN. Mr. White, would you identify these exhibits?

Mr. WHITE. Well, as I said, this one has previously been entered. The two exhibits here, 392 and 393, are artwork that I prepared in my study of these two photographs.

Now these are what are called the 3-M color keys. They are red and blue transparencies of photographs 133-A and 133-B.

Mr. GENZMAN. Would you point out on these exhibits how you determined that the heads are identical?

Mr. WHITE. Well, I started it out with the prints of the two photos that I ordered from the National Archives. I then made photocopies of them and printed them to the same exact head measurement, the top of the head to the bottom of the chin, so that the head measurements would be the same.

I then took these two prints to a photoengraver who shot a halftone negative and converted the photos to these red and blue prints that you see.

Mr. GENZMAN. Could you lift up the enlarged overlay to show each head?

Mr. WHITE. Yes.

As you see here, entirely in red is the head on 133-B. Entirely in blue is the head on 133-A.

Mr. GENZMAN. Do the heads match exactly?

Mr. WHITE. The heads match identically with one minor exception which I will point out.

All around the hair matches—the outside and inside edges of the hair. The eyebrows, the eyes, the ears, the nose, the nose shadow, the chin, all match exactly. There is no variation. However, the lips do vary.

On 133-B notice the lips seem to be turned downward in a frown, and yet on 133-A, which is the blue one, the lips are turned upward in a smile.

Now I am no expert in anatomy or physiognomy or whatever you want to call it, but my impression is that lips are connected to the face. I have tried this experiment in the mirror, and you can, too. Look in a mirror you will see if you change your lips from a smile to a frown other features on your face change. It is virtually impossible to move your lips without moving other features on your face.

Mr. GENZMAN. Why would there be this difference?

Mr. WHITE. I believe the original photo is probably the smiling photo. You can see strong evidence of retouching on B. I believe the lips on 133-B have been retouched so that the face would not appear to be absolutely identical to the other photo.

Mr. GENZMAN. Mr. White, did you testify earlier that in each backyard photograph one man's head is attached to another man's body?

Mr. WHITE. Yes.

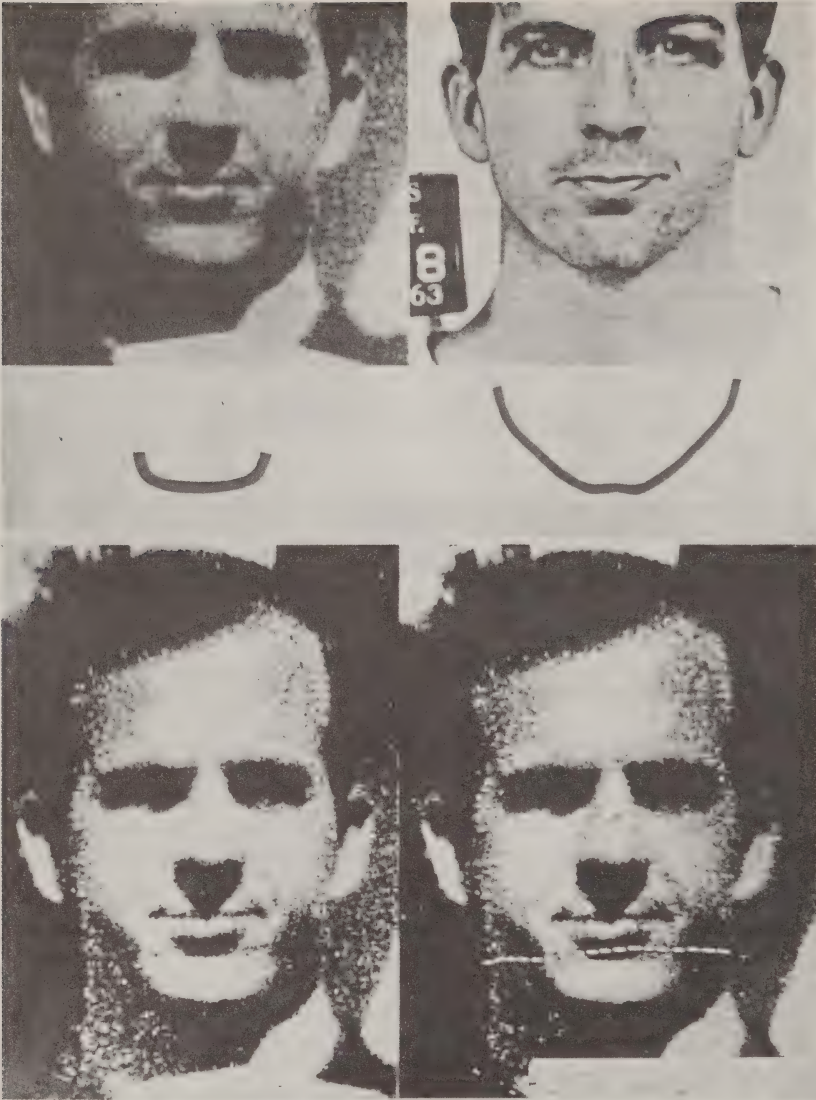
Mr. GENZMAN. Where were these attachments made?

Mr. WHITE. Well, as Professor Blakey indicated in his narration, it is widely believed that the splice occurs in the line straight across the chin under the lip.

Mr. GENZMAN. Mr. Chairman, at this time I would ask that JFK exhibit marked "F-394" be entered into the record.

Chairman STOKES. Without objection it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-394

Mr. GENZMAN. Mr. White, would you explain this exhibit?

Mr. WHITE. This is another exhibit that I prepared. In the center you see the Dallas police mugshot of Lee Harvey Oswald. On the left side you see the face from 133-A. On the right side you see the face from 133-B. All these head sizes have been printed to the same size. Notice the chin on the Dallas police mugshot is a rather pointed chin with a slight dimple or cleft in it. You will notice the same thing on this other Dallas police photo of Oswald in custody on exhibit F-270.

Yet, if we examine any of the faces in 133-A, B, or C, we see that the Oswald in the backyard photos has a broad, square, flat looking chin with no cleft or no sharp point to it.

Mr. GENZMAN. Mr. White, did you analyze the shadows cast by the figures in the backyard photographs?

Mr. WHITE. Yes.

Mr. GENZMAN. Did you find any peculiarities?

Mr. WHITE. Yes, several.

Mr. GENZMAN. Would you please refer again to exhibit 391? That is the three sections of the overlays of A and B.

Mr. WHITE. Yes.

Mr. GENZMAN. Can you explain the top display of this exhibit?

Mr. WHITE. Yes. Again, this is the same exhibit we saw before in which 133-B is a brown picture and 133-A is a red transparency overlay to the same head size over the brown picture. In 133-A you will notice that the shadow of the nose of Oswald goes directly to the center of his lips. Notice that in 133-B, the shadow of the nose goes directly to the center of the lips. Yet when we overlay these two pictures, we find that the head has tilted 4 degrees approximately from the A picture to the B picture. Yet the nose shadow moves as the head tilts.

In other words, in both pictures the nose shadow goes directly to the center of the mouth whereas when he tilted his head 4 degrees, the constant direction of the sunlight should have caused the shadow to move.

As you can see in A by this red arrow here, the sunlight coming in this direction would cause the shadow to fall to the center of the lips. Yet, as he tilts his head, the sun would have had to move in the sky 4 degrees to compensate for the tilt of his head. All other shadows in the picture are identical.

Notice the shadow on the post under the stairway. It exactly overlays from one picture to the other. This stairway shadow has not changed, and yet this nose shadow moved as the head moved.

Mr. GENZMAN. Mr. Chairman, on this I would ask that JFK exhibit F-395 be entered in the record.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



Mr. GENZMAN. Mr. White, would you identify exhibit 395?

Mr. WHITE. Yes. This is another piece of art that I prepared. It consists of pictures A, B, and C all printed to the same background size. The main difference you notice in them, besides the fact that I have cropped some off the sides, is that I have positioned them according to the vertical reference points; in other words, you notice that some are higher or lower than others.

Now I have positioned them so that the same point in the background is along the horizontal line in the three pictures.

Mr. GENZMAN. Did you notice any peculiarities on the shadows of these pictures?

Mr. WHITE. Yes. If you consider each photograph as if you are looking at the face of a clock, it is quite obvious that in 133-A the ground shadow of the figure is pointing to 10 o'clock. In 133-B, the ground shadow is pointing to 12 o'clock. In 133-C the shadow is again pointing to 10 o'clock, but even though the figure is shorter, it is casting a longer shadow; in fact, the shadow goes 6 or 7 inches up the fence.

Mr. GENZMAN. Thank you.

Mr. White, did you analyze the position of the body in backyard photograph A?

Mr. WHITE. Yes.

Mr. GENZMAN. Did you make a determination as to the body stance in 133-A?

Mr. WHITE. Yes, I think the body stance is in position out of balance with the background. If you compare the verticals in the background to the balance point of the body, you find that the figure could not be possibly standing in that position because it is out of balance. If you make a parallel line from the center of the chin that is parallel to this post in the background, you find that the point of balance falls approximately 3 to 4 inches outside the weight-bearing foot. You can try this yourself by suspending a plumb bob from your chin and in order to get it to fall at a point 3 or 4 inches outside your weight-bearing foot, you will be off balance and you will fall over.

Mr. GENZMAN. Based on this analysis, what is your conclusion as to whether the figure is part of the background or whether it has been superimposed on the background?

Mr. WHITE. This is what led to my conclusion that the figures have been superimposed over the background. In other words, if it is impossible for a person to stand in that position in that background, then the figure had to be photographed independently and then pasted, if you will, or superimposed photomechanically on a blank backyard photograph.

Mr. GENZMAN. Thank you, Mr. White. Would you return to your seat.

Mr. White, based on all of your findings, is it your conclusion that the backyard photographs are fakes?

Mr. WHITE. Yes.

Mr. GENZMAN. Based on your expertise, how do you think these photographs came into being?

Mr. WHITE. Well, the way I visualize is very similar to someone coming to our advertising agency with a job they want done. I think that possibly somebody came to a sophisticated art and

graphics department of some sort and they had several ingredients with them that they wanted made into a composite photo.

They had with them a backyard photo with no person in it. They had a single ID-type photograph of the person we know as Lee Harvey Oswald. They had a couple of Communist newspapers. They had a pistol and they had a rifle. And just suppose that I am this art department that they have come to, I can visualize someone saying to me "Here are these articles. I want them put together into a composite photograph. The person's face you have here, I want him to be holding the guns and the newspapers and then I want the figure superimposed on this background."

Well, being in graphics, I recognize that there are several techniques to do this, but it is not a simple matter. In order for our firm to do this, we would go to outside experts probably. We would go to an art studio or some firm which specializes in photographic composites. This is not something that could be done by someone with just a few weeks or a few months training. It would require the skill of a highly technical expert artist and photomechanical technician. And the steps that would be undertaken I visualize as being this. You have the blank backyard photograph, but you need to have a figure to put in it. So either in a studio or in an appropriate lighting in an outdoor situation, you photograph someone holding the gun and the newspapers in various poses. Of course, this person in my opinion was not Lee Harvey Oswald but some photographer's model.

Once these photographs, which were taken against a blank or white background, were completed, then an artist superimposed copies of the face on the various bodies in the place of the face of the real person who was photographed holding these objects. At that point some retouching was done. A mask was made which—"mask" I mean an amberlith outline of the figure and the gun that is to be superimposed on the background. Then through a sophisticated technique called matting, a negative and a positive were made of this mask, and one of these was used to outline the figure the other was used to knock out of the background—the area to be double printed with the figure holding the gun.

Then through the use of this pin register system to make sure the two images match exactly, the figure was printed onto the background. All this was done in a large size, I would estimate 14 by 20 inches. If we were doing the job, we would work with a 16 by 20 probably, even though the final results were going to be rather small.

Once this double-printing of the image into the background occurs, then final retouching has to occur, and I think this is where the shadows were added. The ground shadows, in my estimation from having examined them closely, are airbrushed onto the background with transparent watercolor over the existing grass.

By the way, at the time that these pictures were made, there is no grass on the ground in Dallas, and there are no leaves on the trees. The date of these pictures supposedly is March 29. I live in Texas, and I see the trees come out. It is usually late April before you have this amount of foliage on the grass, the bushes, and the trees. So I think the shadows were added by transparent retouch

ing, just as the British photo expert said on the film we saw a while ago.

Some of the shadows were added improperly. For instance, the shadow of the post by the head of the figure on B is much wider than the same shadow on A. And also as he pointed out, when they cut their airbrush frisket, the knife must have slipped because the post becomes crooked in B and it is not crooked in A.

Mr. GENZMAN. Thank you, Mr. White.

Mr. Chairman, this concludes my questioning.

Chairman STOKES. The Chair recognizes Mr. Goldsmith.

Mr. GOLDSMITH. Thank you, Mr. Chairman.

Mr. White, when did you first form the opinion that the Oswald backyard pictures are fake?

Mr. WHITE. You mean an exact date?

Mr. GOLDSMITH. No, roughly.

Mr. WHITE. I would say about 5 years ago.

Mr. GOLDSMITH. And that was after how many years of study of these photographs?

Mr. WHITE. Well, I have been studying them and looking at them, say, for 15 years. I did not start these tests and prepare the artwork you see here until anywhere from 3 to 5 years ago.

Mr. GOLDSMITH. You have been looking at these photographs for approximately 15 years and approximately 5 years ago you reached the conclusion?

Mr. WHITE. About 5 years ago, I ordered copies of the prints from the National Archives in order to make a more detailed study. Previous to that, I had only seen work that other researchers had done, such as Fred Newcomb and some others.

Mr. GOLDSMITH. Examining the photographs, how many factors suggesting that they are fake were you able to find, again just estimating?

Mr. WHITE. I haven't made a count, but I would say 10 to 12 at least.

Mr. GOLDSMITH. Now you indicate that you found at least 10 to 12 factors.

Mr. WHITE. I would guess at that.

Mr. GOLDSMITH. In light of that, do you regard the fakery that was allegedly been done here to be sophisticated or crude?

Mr. WHITE. It is sophisticated.

Mr. GOLDSMITH. Have you ever examined the original exhibits? By that I mean the original first generation of prints of 133-A and B and the original negative?

Mr. WHITE. No. I have only seen the DeMohrenschildt picture in the original.

Mr. GOLDSMITH. So as to exhibits 133-A and B you have never examined the first-generation print and you have never examined the original negative; is that correct?

Mr. WHITE. That is true. I have only the prints that were furnished me by the National Archives.

Mr. GOLDSMITH. Do you know what generation prints they were? By that I mean if someone were to take a picture of 133-A or B, that would now be a second-generation print?

Mr. WHITE. That is right.

Mr. GOLDSMITH. And if someone were to take a picture of that, it would be a third-generation print and so on?

Mr. WHITE. True.

Mr. GOLDSMITH. The materials you were given, do you know what generation they were?

Mr. WHITE. I have no way of knowing. I would presume that they were the next generation after what the exhibit is in the National Archives. That is just a presumption. I have no way of knowing.

Mr. GOLDSMITH. And prior to that, when you indicated that you had thought that these photographs were fake, this was based upon the work done by other people; is that correct?

Mr. WHITE. Yes, on things I had seen in various books, magazines, and so forth.

Mr. GOLDSMITH. And these things that you had seen in various magazines and books, were they the first-generation prints?

Mr. WHITE. I have no idea.

Mr. GOLDSMITH. You must have an idea, because if they were in a magazine or in a book, could it possibly have been a first-generation print?

Mr. WHITE. Oh, no; obviously not.

Mr. GOLDSMITH. Have you ever had occasion to take the original negative from 133-B and analyze it with a computer by a technique called "digital image processing"?

Mr. WHITE. No, obviously not.

Mr. GOLDSMITH. Mr. White, I have in front of me a pamphlet that you put together for the committee.

Mr. WHITE. Yes.

Mr. GOLDSMITH. Do you recognize this?

Mr. WHITE. Yes.

Mr. GOLDSMITH. On page 31 of that pamphlet, I regret that we do not have this in exhibit form. I see that you have it in front of you.

Mr. WHITE. Page what?

Mr. GOLDSMITH. Thirty-one.

Mr. WHITE. Oh, yes.

Mr. GOLDSMITH. I see that you have taken a ruler and placed it by Oswald's body and also by his rifle; is that correct?

Mr. WHITE. Yes.

Mr. GOLDSMITH. Mr. White, do you believe that an object photographed can be measured simply by placing a ruler against the image in the photograph?

Mr. WHITE. No.

Mr. GOLDSMITH. When you measured the object in this photograph, what did you do beyond using the ruler?

Mr. WHITE. This is strictly a two-dimensional measurement. Obviously I did not take into consideration any perspective which might exist or any other considerations. It is just a mere measurement of the body from the weightbearing foot to the top of the head in each case and of the rifle from the muzzle to the butt.

Mr. GOLDSMITH. Without giving any account to other factors?

Mr. WHITE. That is true. I am not a physicist or any sort of a scientist who could determine anything relating to the perspective. We don't know how close the rifle is to his body. We don't know how close the camera is to the subject, so it would be virtually

impossible for just a plain citizen like me to interpret the perspective of this photograph.

Mr. GOLDSMITH. Have you had any training in analytical photography?

Mr. WHITE. No.

Mr. GOLDSMITH. Have you had any formal training in forensic photography?

Mr. WHITE. No.

Mr. GOLDSMITH. Have you had any formal training in the study of shadows in photographs?

Mr. WHITE. No.

Mr. GOLDSMITH. Mr. White, if the picture is authentic, would you expect all the shadows cast by objects in that picture to line up parallel to each other?

Mr. WHITE. I am no expert on that. I wouldn't have any conclusion unless you pointed some specific reference to me.

Mr. GOLDSMITH. Are you familiar with the concept known as vanishing point'?

Mr. WHITE. Oh, yes.

Mr. GOLDSMITH. When you studied these photographs did you use the vanishing point concept to analyze the shadows?

Mr. WHITE. Not as such. I didn't see any point in using a vanishing point to analyze shadows.

Mr. GOLDSMITH. Mr. White, drawing your attention to the right side of photographs 133-A and B, did you detect any retouching here?

Mr. WHITE. I didn't really pay much attention to the marginal edges. I was mostly concerned with things in the center of the picture.

Mr. GOLDSMITH. At this point I would ask that Mr. White be given the original of 133-A and B.

Do you have those before you now, Mr. White?

Mr. WHITE. Yes.

Mr. GOLDSMITH. I would like to refer your attention now to the area to Oswald's left in the two photographs.

Mr. WHITE. Yes.

Mr. GOLDSMITH. If you look at the area that I am pointing to at the exhibits, I would ask you to examine that same area in the original photographs.

Mr. WHITE. Yes, I see what you are referring to.

Mr. GOLDSMITH. Are those shadows the same in each background?

Mr. WHITE. It appears to be some sort of imperfection. I can't tell whether it is a shadow or not. They don't appear to be the same rough.

Mr. GOLDSMITH. I would now like to draw your attention to a rectangle that appears in the picket fence in each photograph, and if you look at the chart, I will point it out to you, here, and right over here.

Mr. WHITE. OK.

Mr. GOLDSMITH. Did you ever measure that rectangle in those two photographs to see if the measurements were the same?

Mr. WHITE. No.

Mr. GOLDSMITH. When you examined the backyard photographs and used the transparency overlay technique, in addition to that, did you ever actually conduct any measurements?

Mr. WHITE. Of what?

Mr. GOLDSMITH. Of different parts in the background to see if the measurements of those parts correspond to each other?

Mr. WHITE. No. However, I can say that I examined the parts of the photograph in relation to each other, and I recognized that in the darkroom technique employed to make these photographs appear to be shot at different perspectives, that certain darkroom techniques like easel-tilt were used which changed the measurements.

Mr. GOLDSMITH. Now I understand that you have examined them, but again you haven't measured them?

Mr. WHITE. That is true, I have not measured them, but there are measurable differences, I would agree. However, this is not necessarily—

Mr. GOLDSMITH. Mr. White, I would ask you simply to confine your answer to my question, so please wait until my next question, sir.

Now you made reference in your testimony earlier to two white portions that appear on the left side of each photograph. I am going to point them out to you now.

I believe this is one; is that correct?

Mr. WHITE. Yes.

No, it is higher than that, right up there, right there, yes.

Mr. GOLDSMITH. And up here?

Mr. WHITE. Yes.

Mr. GOLDSMITH. Did you ever measure those parts of the photograph to see if they were consistent with each other or if there were measurable differences?

Mr. WHITE. You mean with a ruler?

Mr. GOLDSMITH. With a ruler or any other technique?

Mr. WHITE. Well, I measured them with an overlay technique in which they appeared to be the same.

Mr. GOLDSMITH. Did you measure them by any unit?

Mr. WHITE. No, not with a ruler or any unit of measurement.

Mr. GOLDSMITH. Mr. White, you have made reference to several points in these photographs that suggest that Oswald's head is disproportionately—

I withdraw the question.

That the body of Oswald is not consistent in the various photographs in light of the head size; is that correct?

Mr. WHITE. Yes.

Mr. GOLDSMITH. To what extent, if any, did you compute photographically the effect of an object's tilt on its apparent length in the photograph?

Mr. WHITE. As I said, I am not a scientist. I don't indulge in that sort of thing.

Mr. GOLDSMITH. Mr. White, I realize you are not a scientist. Do you know whether scientists consider the use of transparency overlays to be a good way of detecting differences between soft edged images?

Mr. WHITE. I have no way of knowing that.

Mr. GOLDSMITH. Thank you very much.

I have no further questions, Mr. White.

Chairman STOKES. The Chair recognizes Mr. Genzman.

Mr. GENZMAN. Mr. White, have you analyzed any rifle photographs connected with the Kennedy assassination?

Mr. WHITE. Yes.

Mr. GENZMAN. What caused you to do this analysis?

Mr. WHITE. I was led to this through my study of CE-133-A and B. Once I had determined to my satisfaction that these were fabricated photographs, I wanted to see if I could identify the rifle in the photographs as being the rifle in any other photographs in any of the Warren Commission literature.

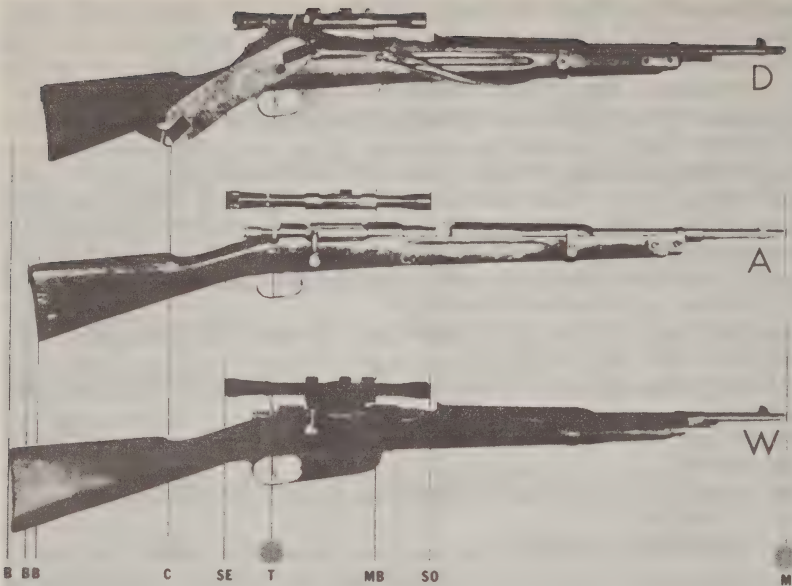
Mr. GENZMAN. At this time would you please refer to JFK exhibits marked F-208 and F-396?

Mr. Chairman, JFK exhibit F-208 was previously introduced into the record.

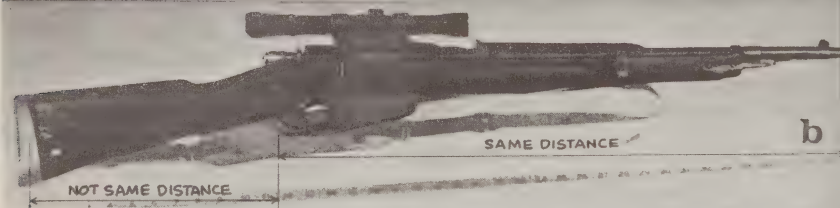
I would ask at this time that JFK exhibit F-396 be introduced into the record.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



FWCMB ARCHIVE PHOTO printed to same distance between muzzle and trigger guard as photo



JFK EXHIBIT F-396

Mr. GENZMAN. Mr. White, could you go over to the exhibits—

Mr. WHITE. Yes, sir.

Mr. GENZMAN [continuing]. Specifically, JFK exhibit F-208, and explain it.

Mr. WHITE. JFK exhibit F-208 is my very earliest attempt to analyze the rifle in CE-133-A and compare it to other photographs of the rifle.

Mr. GENZMAN. Would you identify the various rifles displayed

Mr. WHITE. Yes. They are labeled "a" through "g" over on the right-hand side.

Photograph "a" is a print from exhibit CE-133-A; photograph "b" is exhibit 139 in the Warren Commission report, which the report tells us is the assassination weapon; "c" is another Mannlicher-Carcano rifle that I wanted to compare with all of these; "d" is erroneously labeled "Oswald's Rifle (Bolt Is Open);" this photograph I took out of the book "Six Seconds in Dallas." I learned later, much later than this exhibit was prepared, that this is not

Oswald's rifle, according to the 26 volumes. This is called "Replica of Oswald's Rifle," so therefore this labeling is erroneous. Nevertheless it makes a good comparison with the other rifles because it is another Mannlicher-Carcano.

Photograph "e"—this is Lieutenant Day's hand here, as he walks out on to Elm Street from the school book depository carrying the rifle. Now, this photograph has been reversed photographically by flipping the negative when it was printed just so it would be in the right orientation with the other photographs. You are actually seeing the opposite side of the gun.

Photograph "f"—again this is Lieutenant Day's hand holding the rifle up, on the third floor of the jail the night of the assassination so that the newspaper people could photograph it.

Photograph "g" is from Dallas Police Chief Curry's book, and this is the Dallas police file photo of the gun said to be the assassination weapon.

Mr. GENZMAN. Did you line these photographs up end to end?

Mr. WHITE. Yes. The Warren Commission told us that the assassination weapon was 40.2 inches long. In fact there is a tape measure in the picture there. So based on this, I assumed, perhaps erroneously, that all Mannlicher-Carcanos are 40.2 inches long. So in the darkroom, as I printed each of these negatives, I printed them each to an identical length from muzzle to butt.

Mr. GENZMAN. What did you determine from this study?

Mr. WHITE. Well, I determined very little actually. The first thing that I determined, that has not later been proved wrong, is that the gun in photograph 133-A seems identical in every respect to the gun "g" which is the Dallas police file photo. Other than that, I found that most of the reference points through which I extended vertical lines could not be made to line up. So I was really rather baffled by this because I couldn't understand why the various reference points shouldn't line up.

Mr. GENZMAN. Besides your determination that the backyard rifle matched the Dallas police rifle, would you characterize your results as inconclusive?

Mr. WHITE. Yes.

Mr. GENZMAN. Mr. White, what was your next analytical step?

Mr. WHITE. About a year passed between this study and my next one, because I was rather baffled by all this, and I really didn't know where to go from there, until a point in time when a researcher from California named Fred Newcomb furnished me a photograph of the rifle as it existed in the National Archives.

Mr. GENZMAN. Would you briefly describe the exhibit labeled 396?

Mr. WHITE. OK.

Once I received this photo of the Archive rifle and studied it in connection with some of the others, I had what you might call a rainstorm, after hearing some rifle experts talk. When I appeared before Senator Schweiker and the Church committee, I talked to some rifle experts. They said frequently when somebody buys an old war surplus weapon like this, the first thing he does is modify the stock to fit his physique. Therefore the thought dawned on me that the wooden stock is changeable.

Mr. GENZMAN. Did you line up the metal parts?

Mr. WHITE. Yes. I made prints where the metal parts of the rifle, that is, from the muzzle to the trigger guard, were all identical lengths.

Mr. GENZMAN. After lining up the metal parts, what did you determine about these stocks?

Mr. WHITE. I determined that the butts were different lengths after lining up the metal parts.

Mr. GENZMAN. Does the photograph at the bottom demonstrate this discrepancy in the length of the stocks?

Mr. WHITE. Yes. Here we have the Archive rifle printed in brown, the Warren report rifle printed in red; all the way from the muzzle through all the metal parts, in fact all the way to the comb, which is this little notch in the stock of rifle. All of that matches exactly. Only from here back, less than one-fifth length of the rifle, does not match.

Mr. GENZMAN. Briefly what did you determine from your study?

Mr. WHITE. It is my opinion that we have been shown by the authorities more than one gun as being the assassination weapon.

Mr. GENZMAN. Thank you, Mr. White. Mr. Chairman, I have no further questions.

Chairman STOKES. Mr. Goldsmith?

Mr. GOLDSMITH. Mr. White, I just have one question.

Mr. WHITE. All right.

Mr. GOLDSMITH. When you did this study, did you compute photogrammetrically the effect of tilt on the way that the length of an object appears in a photograph?

Mr. WHITE. I conducted a study by photographing a yardstick from three different—

Mr. GOLDSMITH. Mr. White, answer my question. Did you compute photogrammetrically—

Mr. WHITE. What is "photogrammetrically"? Describe to me what "photogrammetrically" is.

Mr. GOLDSMITH. I just have one more question Mr. White. Do you know what photogrammetry is?

Mr. WHITE. No.

Mr. GOLDSMITH. I have no further questions. Thank you.

Chairman STOKES. The committee will recess until 1:30 p.m. this afternoon.

Mr. FITHIAN. Mr. Chairman.

Chairman STOKES. Yes, proceed.

Mr. FITHIAN. Will Mr. White be back after the recess?

Chairman STOKES. He will be back.

Mr. FITHIAN. Thank you.

[Whereupon, at 12:30 p.m., the select committee was recessed, to reconvene at 1:30 p.m.]

AFTERNOON SESSION

Mr. FITHIAN. The committee will come to order.

I will ask Mr. White to take the stand. While he is doing that, let me explain where we are before the House now.

Apparently, in about 12 minutes or so the resolution for the funding of this committee will be considered. During that time, of course, the members of the committee will need to be on the floor

and there will be a recess. It is not anticipated that that will be a long debate. Then, I believe, Mr. Blakey, we will reconvene and proceed.

Mr. Goldsmith, I believe, has just a couple of more questions. I had two very brief ones, and so, a matter of 4 or 5 minutes, Mr. White.

Mr. GOLDSMITH. Mr. White, actually I have no further questions to ask you. I would simply like to make a few comments and they are as follows: The committee is very much aware of the assistance that you have offered to us. We are aware of the work that you have performed in this field and the committee is thankful for the work of people such as yourself who have served greatly to assist us in identifying the issues in the area of the photographic evidence that need to be resolved.

I might add that at least I am aware that at some time you served as a consultant to this committee, and although you are not at this time affiliated with the committee's photographic evidence panel, that your work has been made available to that panel for analysis. In that regard I would simply state, were it not for people such as yourself, this committee would probably not be here today examining the scientific issues.

Again, sir, I would like to thank you very much.

TESTIMONY OF JACK D. WHITE—Resumed

Mr. WHITE. Thank you. I appreciate the opportunity to present this as a private citizen who has no large budget to work with. I am just an ordinary person who has observed lots of things and I am really here to present questions rather than answers.

Mr. GOLDSMITH. We appreciate that. Again, thank you.

Mr. FITHIAN. Mr. White, you are in a professional advertising business, right?

Mr. WHITE. Yes, sir.

Mr. FITHIAN. My contacts with that business have been usually geared to certain times of the even-numbered years, but I believe it is correct to say that people doing outdoor advertising and doing brochure layouts, et cetera, would turn us down cold in their own professional work if we sent them second, third, or fourth generation material and they would insist on first generation material; isn't that correct?

Mr. WHITE. Yes. You would be better off using originals. In my studies, as I told the committee, I had no large budget to work with. In all my studies I made use of materials that were available to me.

Mr. FITHIAN. But in your professional work you would always insist on first generation?

Mr. WHITE. Yes, I recommended to the committee that they procure originals, the closest generation original to all of these things to study.

Mr. FITHIAN. You have anticipated my second question, then, which was just again to clarify the record.

I was sure, being the professional that you are, that you would not have sought or asked for third generation films.

Mr. WHITE. Definitely not.

Mr. FITHIAN. Did the National Archives ever tell you which generation you received?

Mr. WHITE. I didn't ask. I asked for the best copy I could get of CE-133-A and CE-133-B.

Mr. FITHIAN. In your experience in commercial art, I take it it would make a difference certainly along the edge lines and the soft edges as I think the term is used, it would make a difference which generation of print was used and how sharp the clarity of the things were? There is a quality difference, isn't there?

Mr. WHITE. That depends. In some cases there is and in some cases it is negligible. The most noticeable difference of the photocopy from the original is in contrast. You hardly ever in a good photocopy will lose significant detail, but you will increase contrast so that the dark areas are generally darker and the light areas are generally lighter.

Mr. FITHIAN. Mr. Thone, this concludes my questions of the witness. Do you have any questions?

Mr. THONE. No, Mr. Chairman.

Mr. FITHIAN. Mr. White, it is the custom of this committee to permit the witness at the conclusion of his or her testimony an additional 5 minutes to clarify, amplify or modify or comment on any testimony. We would offer you that time now.

Mr. WHITE. I don't have too much to say except to thank the committee.

There was one area of questioning which I had hoped to get into, which because of the shortness of time before lunch I was not permitted to go into. That is the question of the DeMohrenschildt picture.

The DeMohrenschildt picture shows a much larger amount of background around the edges than any of the photographs, 133-A, B or C. To me this indicates that the DeMohrenschildt picture is printed full negative. In fact, we can verify this because it is printed with a black border around the edge, the black border being the clear area around the edge of the negative.

According to the FBI, the picture, CE-133-B, was identified as being taken with Oswald's camera because it could be matched to the film plane aperture. Yet if the DeMohrenschildt picture shows a larger background area and it is taken from the same camera viewpoint, then 133-A, B and C have all been cropped and, therefore, if there is more background area in the picture, then it could not possibly be matched to the film plane aperture. Other than that, I have no additional comments.

Mr. FITHIAN. Thank you, Mr. White. You are excused. We want to thank you for coming today.

Mr. WHITE. Thank you.

Mr. FITHIAN. Professor Blakey.

Mr. BLAKEY. Mr. Chairman, I would note one thing for the record before making a comment.

Proving the universal usefulness of the eraser on a pencil and thus its applicability to, me and I suppose to committee staff as to all others, I have had drawn to my attention what I hope is a typographical error in the narration this morning.

When I was discussing the conclusions of Mr. Shaneyfelt, as to the first conclusion, I indicated that he had determined that the

argin irregularities on the negative of 133-A were identical, et
tera.

I should have—and I express my regrets to the committee and
ose who listened—I have said 133-B. I apologize for my error.
Mr. Chairman, if it would be appropriate on this occasion to
ake two additional comments: The committee sought testimony
om a number of people who had special expertise in the area of
otographic analysis and had taken public positions on the forged
fake character of the backyard photographs. One individual
peared on the BBC program shown this morning.

In August a representative from the committee talked with Mr.
omson in Edinburgh, Scotland concerning his examination of the
ckyard photographs and the conclusions he drew as a result. He
as shown various technical reports compiled by the committee's
otographic evidence panel which addressed the issue of the au-
enticity of their backyard photos and was asked to comment, and
addition, offered an opportunity to appear before the committee
id express his views.

After studying the reports, Mr. Thomson deferred to the panel's
nclusions that the photographs revealed no evidence of faking,
ting the thoroughness of their investigation and emphasized that
e opinions he expressed earlier were based on examination of
pies of photographs, not the original negatives and first genera-
on prints as had been the case in the photographic panel analysis
ocess.

Mr. Thomson did, however, reserve his opinion on the chin in the
kyard pictures which is suspiciously different from the chin he
d observed in the Dallas arrest photographs of Oswald. He also
ained skeptical as to the ability of a computer to detect a
otocopy composite photograph.

In addition, the CBC program of "Fifth Estate" included com-
ents from J. M. Pickard, a photographic expert with the Depart-
ent of Defense in Canada. Mr. Pickard was asked about his public
inions that the photographs were fake.

He indicated to the committee staff that he spent less than 1
ur in preparing for the public airing of his comments and he
ade no scientific analysis of the photographs before offering his
blic opinion. Mr. Pickard was not available to testify here today.
In light of the impending vote, Mr. Chairman, it might be appro-
iate to take a recess at this time and come back to the photo-
aphic panel this afternoon.

Mr. FITHIAN. Let the Chair note that I am advised that the
nding resolution has now been called up on the floor. For those
you who plan to join the hearings later this afternoon, it is my
gment, though I could be wrong, that it will not be a long
bate, although I suspect from the vantage point of the committee
serious one.

If you are watching clocks or bells in the building or even in this
om, in all probability the first two bells or two light signals will
the vote on the final passage of the funding resolution. We do
t anticipate any amendments to the resolution.

Therefore, if you want to gear or time your own activity, I would
ess you can probably tell when the next two lights go on that
at will be a vote. There will be a 15 minute voting period follow-

ing that and the committee should be then back in session within 15 minutes of the next two bells. If you want to be very scientific about it, dial 57400 and find out whether or not that is the final passage vote.

The committee stands adjourned subject to the call of the Chair. I am told that we might be done by 2:30 p.m.

[A brief recess was taken.]

Chairman STOKES. The committee will come to order.

The Chair recognizes Professor Blakey.

Mr. BLAKEY. Thank you, Mr. Chairman.

Early in 1978 the committee convened a panel of experts with varied backgrounds in the photographic sciences to study all photographic evidence related to the assassination. The panel's expertise included: Analog photographic enhancement, digital image processing, photogrammetry, photo interpretation and forensic photography. Resolving the controversy of the backyard photographs was a prime objective.

Because the quantity of material to be examined was large, the technical projects were contracted to several laboratories. The photo-optical, analog enhancement work was done by a team of professors at the Rochester Institute of Technology. The image processing work was done by the University of Southern California Image Processing Institute, the University of California Los Alamos Scientific Laboratory, and the Aerospace Corporation.

The photographic panel met with representatives of the laboratories in February 1978. The analytical work began in March and proceeded, subject to the panel's review, until mid-July.

The most advanced technology available to the committee was applied to the photographic evidence. In addition to the original negative and first generation prints of exhibits 133-A and B examined by the Warren Commission, the panel examined the first generation prints obtained from Dees, De Mohrenschildt and Stovall. The additional prints allowed a more comprehensive investigation than that of the Warren Commission.

Two representatives of the photographic panel are here today to present the panel's findings: Mr. Calvin S. McCamy whom the committee has heard from previously and Sergeant Cecil W. Kirk.

Sergeant Kirk has served 17 years with the Identification Branch of the D.C. Metropolitan Police Department. He supervises the branch's mobile crime laboratory and the Photographic Services Unit, which produces about 30,000 forensic photographs per month, and which, I should note, Mr. Chairman, has been extremely helpful to this committee in producing photographs in connection with our hearings.

Sergeant Kirk has studied forensic photography at the University of Louisville Southern Police Institute, the FBI Academy, and the University of Maryland. He has received the Photographic Craftsman Degree from the Professional Photographers of America.

Sergeant Kirk is an instructor of forensic photography at the University of Maryland and the Virginia Academy of Forensic Sciences. He is a guest lecturer at Central Missouri State University and the FBI Academy. He is the author of numerous professional articles in the field of photography and is the vice president of

the Evidence Photographers International Council and who I should note, Mr. Chairman, has been extremely helpful to this committee in producing photographs in connection with these hearings.

Mr. McCamy received his B.S. degree in chemical engineering and an M.S. degree in physics from the University of Minnesota. He has taught mathematics at the University of Minnesota and physics at Clemson University. For 18 years he was with the National Bureau of Standards where he was chief of the image optics and photography section. He is the author of the National Bureau of Standards handbook on the examination of microfilm. Currently he is vice president for service and technology of the Macbeth division of Kollmorgen Corp.

Mr. McCamy is chairman of the photographic standards management board of the American National Standards Institute. That board is responsible for all photographic standardization activity in the United States, including such matters as ASA film speeds. He is also chairman of the standards committee of the American Society of Photogrammetry.

Mr. McCamy is a fellow of the Optical Society of America, the Society of Motion Picture and Television Engineers, and the Society of Photographic Scientists and Engineers. He has served on the editorial review boards of several technical journals and has authored numerous professional papers. He has, of course, already testified before the committee.

Mr. Chairman, it would be appropriate at this time to call Mr. McCamy and Sergeant Kirk.

Chairman STOKES. The committee calls both of these gentlemen at this time. I am going to ask you to raise your right hand and be sworn.

Do you solemnly swear the testimony you will give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

TESTIMONY OF CALVIN S. McCAMY AND SGT. CECIL W. KIRK

Mr. McCAMY. I do.

Sergeant KIRK. I do.

Chairman STOKES. Thank you, you may be seated. The Chair recognizes counsel, Mr. Genzman.

Mr. GOLDSMITH. Mr. Chairman, I believe that I am going to be handling the questioning this afternoon.

Chairman STOKES. I am sorry.

Mr. Goldsmith.

Mr. GOLDSMITH. Thank you. Sergeant Kirk, would you state for what purpose the committee's photographic evidence panel was asked to examine the backyard photographs showing Lee Harvey Oswald and a rifle?

Sergeant KIRK. To make a determination whether the photographs were authentic or fakes.

Mr. GOLDSMITH. I would like to refer your attention to what has been marked as committee exhibit 178 which is the flow chart on the right.

I would like to ask you how many different backyard pictures showing Oswald with the rifle was the panel given to examine?

Sergeant KIRK. We examined the original 133-A and B and 133 negative which were examined by the Warren Commission. In addition, we examined four additional photographs that were recovered by investigators from this committee.

Mr. GOLDSMITH. Would you step to that chart and point to the other photographs that were investigated by the panel?

Mr. Chairman, I move for the admission of this item.

Chairman STOKES. Without objection it may be entered into the record.

[The information follows:]



JFK EXHIBIT F-178

Sergeant KIRK. These are the two photographs that were sent over to the Federal Bureau of Investigation by the Dallas Police Department as a result of the execution of a search warrant on the Paine residence. In addition, they also turned over to the FBI this photographic negative. These are the three elements that were examined by the Warren Commission.

In addition, the photograhic panel also was asked to examine 133-A, De Mohrenschildt, which was recovered by the committee investigator from the deceased estate of Mr. De Mohrenschildt, and also requested to examine 133-C, Dees, which has been established to be from a deceased Dallas police officer, and also asked to be examined 133-A, Stovall, and 133-C, Stovall, which was turned over to the investigators by retired Officer Stovall who executed the search warrant at the Paine residence.

Mr. GOLDSMITH. Are all the materials represented on that flow chart either original negatives or first generation prints?

Sergeant KIRK. The camera panel established that the 133-B negative is the original camera negative material and all the other photographs on this chart are first generation prints.

Mr. GOLDSMITH. To what extent, if any, did the panel base its analysis upon materials that were not original negatives or first generation prints?

Sergeant KIRK. The panel agreed to only investigate first generation prints and original negative material.

Mr. GOLDSMITH. What was the reason for the panel taking this approach?

Sergeant KIRK. When you move away from first generation material, you lose in tonal quality. You are likely to pick up artifacts in the copying material and lose detail in the highlights and lose detail in the shadows.

Mr. GOLDSMITH. What do you mean by tonal quality, sir?

Sergeant KIRK. Tonal quality is the full scale that the photographic film is able to give you in a photograph. If you copy a photograph, you will lose some of that scale.

Mr. GOLDSMITH. Referring to that flow chart, can you explain why these pictures are not all the same size?

Sergeant KIRK. They were produced by different mechanical means.

Mr. GOLDSMITH. Is there anything unusual about the differences in size?

Sergeant KIRK. No.

Mr. GOLDSMITH. Thank you.

Would you resume your seat at this point. I would ask that Sergeant Kirk be given, to examine, the original negative to 133-B and Warren Commission exhibits 133-A and B.

Sergeant Kirk, would you please identify the items that have just been given to you?

Sergeant KIRK. These are from the National Archives. They are the original photographs that have been identified in the Warren Commission Report as 133-A and 133-B. This is the photographic negative from the Archives. It is identified as the negative that produced 133-B.

Mr. GOLDSMITH. To your knowledge are these materials available for anyone to examine?

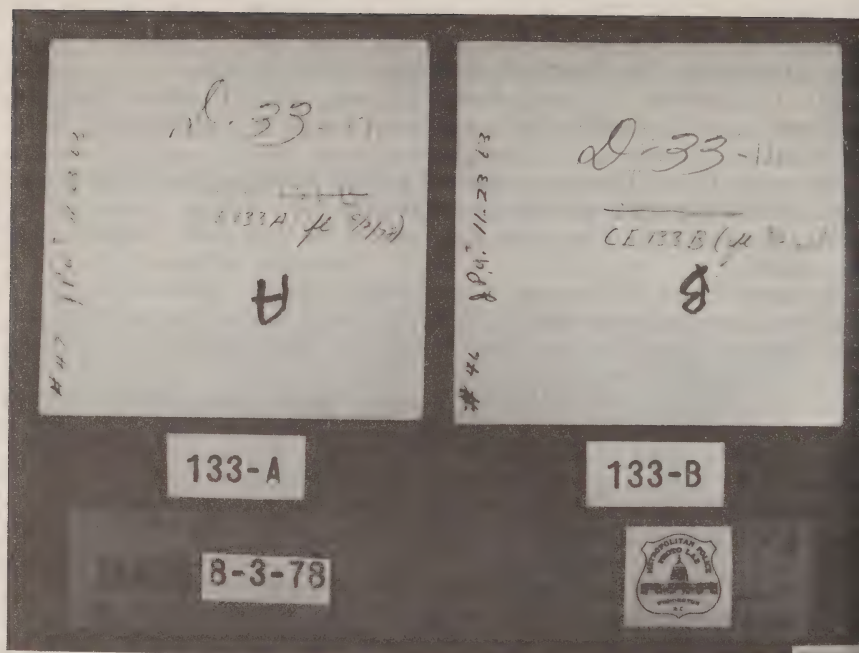
Sergeant KIRK. It is my understanding that anyone who wants to walk into the Archives and has the proper identification can examine them, yes.

Mr. GOLDSMITH. I would ask at this time that what has been marked as JFK F-179 and F-182 be shown to the witness.

Mr. Chairman, I move for the admission of F-182.

Mr. DODD [presiding]. Without objection it is so ordered.

[The information follows:]



JFK EXHIBIT F-182

Mr. GOLDSMITH. Thank you.

Would you identify these two exhibits?

Sergeant KIRK. Yes, sir. They are true and accurate reproductions of the front and reverse side of Commission exhibits 133-A and B.

Mr. GOLDSMITH. You indicated earlier that the differences in size in these photographs as they are depicted in the flow chart is attributable to the manner in which they were produced.

In your opinion, would you tell us now how Warren Commission exhibits 133-A and B were produced?

Sergeant KIRK. Yes, sir. These were referred to in the panel as the drugstore prints. It was determined that they most likely were produced on a commercial printer, the type which we would find in processing houses that do printing for camera stores and drugstores and so forth. The masking on the front, even though it looks square, is a 32d of an inch off.

In the top lefthand corner you can see where the convertible mask and the automatic printer has come together. On the reverse side of the photographs in the lefthand corner there is a little graphite mark almost obscured by someone who has written their initial and data on it.

Mr. GOLDSMITH. Mrs. Downey, would you take the pointer and refer to that mark?

Sergeant KIRK. That graphite mark is placed on the automatic printer. It is used as a signal for the automatic cutter. When the roll of paper is processed, the automatic cutter has an electric eye that picks up the signal and tells it to cut the roll of paper up into snapshots.

Mr. GOLDSMITH. Examining these two prints, are you able to state whether these two prints have been cropped in any way?

Sergeant KIRK. Yes, sir, I can.

Mr. GOLDSMITH. Have they been?

Sergeant KIRK. Yes, they have.

Mr. GOLDSMITH. Would you state your opinion as to in what way these prints have been cropped and for what purpose?

Sergeant KIRK. Well, at that time of day or time of year or that year, people prefer white borders on their photographs. The cropping or masking is done in the printing process at the processing house to create a white border around the photograph.

So the mask is somewhat smaller than the actual image size of the negative. Thusly, the cropping takes place for aesthetic purposes only.

Mr. GOLDSMITH. Now, you made reference to the negative in front of you. Is there any indication that that negative was improperly processed?

Sergeant KIRK. Yes, sir. The panel found that the negative had been abused in the process.

Mr. GOLDSMITH. It was not properly processed?

Sergeant KIRK. No, sir, it was not.

Mr. GOLDSMITH. Would you indicate to what extent it had been abused?

Sergeant KIRK. Originally there were emulsion tears. Emulsion is the substance of the photograph that contains the light sensitive grains of silver there suspended in the gelatin base. When the negative is becoming processed, it becomes wet, very sensitive to touch, very soft. We have on this negative torn emulsion.

Also, there are probably some other artifacts that were entered onto the negative as it was processed, probably by hand or at least in something that was not designed to process film of this size.

Also, there are indications that the negative has not been washed properly as there are water spots on the negative surface itself.

Mr. GOLDSMITH. Thank you, Sergeant Kirk.

Now, according to the record, are these materials before you all the materials that the Warren Commission evaluated when the authenticity of backyard pictures was examined?

Sergeant KIRK. Yes, it is.

Mr. GOLDSMITH. At this time I would ask that Sergeant Kirk be given JFK exhibits F-380 and F-390. For the record, those are the copies of 133-C, Dees and Stovall.

Sergeant KIRK. This is a first generation print of the photograph that was identified as 133-C which was recovered from Mrs. Geneva Dees who is the widow of the deceased Dallas police officer, Roscoe White.

Mr. GOLDSMITH. You are referring now to JFK F-380?

Sergeant KIRK. 380.

Mr. GOLDSMITH. Would you now examine JFK F-390.

Sergeant KIRK. This is identified as JFK F-390. It is also a first generation print from 133-C. This was recovered by committee investigators on April 14, 1978 from the retired Dallas police officer, Richard Stovall.

Mr. GOLDSMITH. You say both of these first generation prints were obtained by the committee from either Dallas police officers or a member of a family of a former Dallas police officer?

Sergeant KIRK. That is correct.

Mr. GOLDSMITH. Would the witness now be shown what has been marked as JFK F-180.

Sergeant KIRK, would you identify that exhibit?

Sergeant KIRK. Yes, sir. It is an enlargement from 133-C, Stovall, identified as JFK-180.

Mr. GOLDSMITH. Mr. Chairman, I move that JFK F-180, and JFK F-390 be admitted to the record.

Chairman STOKES. Without objection they are entered into the record.

[JFK exhibit F-180 was entered previously.]

Mr. GOLDSMITH. Sergeant Kirk, I would ask you to explain how these two 133-C prints were produced.

Sergeant KIRK. Through close analysis of the two photographs we were able to establish that they were first generation prints. The negative that produced these prints suffered the same abuse as 133-B negatives and that we have emulsion tears, artifacts on the film plane itself, rather than within the image. They are considerably sharp, sharper than the image itself.

Also, there are other artifacts within the photograph that the panel believes or suggests that they are first generation prints.

Mr. GOLDSMITH. Have these prints been cropped?

Sergeant KIRK. Yes, sir.

Mr. GOLDSMITH. Are you able to state in what way, for what purpose, these have been cropped?

Sergeant KIRK. The pictures are square and we have rectangular photographs. To make a full enlargement from a 2¼ negative, this should have been an 8 by 8 photograph. Since we have an 8 by 10, we did have cropping.

Mr. GOLDSMITH. Are you able to state whether the white border, which is an indication that the photograph has been cropped, was intended to serve an esthetic purpose?

Sergeant KIRK. It looks as though the print was put into a conventional 8 by 10 print easel. Since the easel is smaller than an 8 by 10 image, it esthetically would create a white border.

Mr. GOLDSMITH. According to the record, was either one of these prints ever provided to the Warren Commission?

Sergeant KIRK. No, they were not.

Mr. GOLDSMITH. What about the original negative, was that provided to the Warren Commission?

Sergeant KIRK. No, it was not.

Mr. GOLDSMITH. Has it been provided to this committee?

Sergeant KIRK. No, it has not.

Mr. GOLDSMITH. Do you know where the negative is today, Sergeant Kirk?

Sergeant KIRK. No, sir, I do not.

Mr. GOLDSMITH. Sergeant Kirk, it was your testimony that in your opinion these prints, which we have designated as 133-C, which were in the possession of former Dallas police department personnel, were made from the original negative?

Sergeant KIRK. Yes, sir.

Mr. GOLDSMITH. At this time I would ask that the witness be given JFK-183 and 184 to examine.

Sergeant Kirk, would you identify that item?

Sergeant KIRK. It is not identified by number but it is the original photograph identified as 133-A, De Mohrenschildt.

Mr. GOLDSMITH. I would ask that Sergeant Kirk be given a chance to see what has been marked as JFK F-382 and F-383. Would you identify these two items?

Sergeant KIRK. Yes, sir; they are a true and accurate representation of the original photograph which is identified as 133-A, De Mohrenschildt.

On the left is the front or image side and on the right is the reverse side of that photograph.

Mr. GOLDSMITH. In your opinion, Sergeant Kirk, how was that print produced?

Sergeant KIRK. This photograph is a contradiction. It is a contradiction in the fact that a good quality enlarger with good optics was used. The person who printed the photograph knew what they were doing when they exposed the paper, and made the enlargement.

The contradiction comes in because it has turned yellow. On the reverse side almost in the center of the photograph is a big blob that you see here, but on the original are yellow stains. This is indicative that probably the photograph was exposed or enlarged from the negative by someone who knew what they were doing.

But yet the person who was given the task of washing the print either didn't follow instructions or was never instructed on how to wash the print properly because the type of paper that was used back in those days had fibers in it and the chemistry and water minerals adhered to the fibers and it required an excessive long time of washing. If it was not washed properly, once it dried it had a tendency for the chemical residue that was left in the paper to turn yellow.

Mr. GOLDSMITH. Has this print been cropped in anyway?

Sergeant KIRK. No, sir; it was not.

Mr. GOLDSMITH. How are you able to make that determination?

Sergeant KIRK. I will have to walk over to the easel.

Mr. GOLDSMITH. Please do.

Sergeant KIRK. This committee heard testimony earlier today saying that this was probably a full negative print as indicated by the black border. The panel agrees with that testimony. Normal printing will give you the esthetic white border that you would have in normal enlarging.

A common negative carrier used for this type of printing would be used to hold the negative. This would do some of the cropping that we talked about.

Now if the photo laboratory that was handling this negative or the person who was using the photo laboratory to make a print did not normally use this size negative, they would have to seek out a negative carrier that would allow the negative to lay flat. This is the type of negative carrier that you would find in a graphics arts shop or printing shop that had to do with a lot of line negatives.

Since it is glass, it would allow you to lay a negative or a strip of negatives into the negative carrier to hold it flat which would

allow you, but would cause you, unless you cropped it by moving a mask around the paper. Again, this would probably indicate that the photo laboratory it was processed in did not have a paper easel small enough.

So when the photograph was printed, you had the complete negative area plus a black border that was created by the unexposed part of the negative.

Mr. GOLDSMITH. Is this an unusual way of producing a print?

Sergeant KIRK. It is not unusual when you are limited in equipment. This technique is used to do down and dirty prints where you want the picture editors to be able to see the full image area so they can determine what final cropping is going to be used. It is unusual; you would not find this technique in a commercial printing house, no, sir.

Mr. GOLDSMITH. Is the absence of cropping in and of itself unusual?

Sergeant KIRK. Yes.

Mr. GOLDSMITH. Why is that?

Sergeant KIRK. Because normally people like to have white borders as I said for esthetic purposes. Unless they were forced to use a larger negative carrier because they did not have another one, then you would have this, or if for some reason they wanted to be able to see the full image area, they would use a larger negative carrier.

Chairman STOKES. Counsel, will you identify for the record the exhibit the witness is testifying about?

Mr. GOLDSMITH. The witness was given F-183 and F-184 which was the original De Mohrenschildt print and he is now referring to an enlargement of it as well which is JFK F-382 and F-383.

Chairman STOKES. Thank you.

Mr. GOLDSMITH. Sergeant Kirk, if you will remain standing, we will give you the next exhibit to examine. Could Sergeant Kirk be given JFK F-398, and could an enlargement of it, marked JFK F-185, be displayed?

Sergeant, would you examine that item and identify it?

Sergeant KIRK. Yes, sir. This item marked as JFK F-185 is a photograph recovered from retired police officer Richard F. Stovall. It was recovered on April 14, 1978, by committee investigators. It is identified on the flow chart as 133-A, Stovall.

Mr. GOLDSMITH. This is the second Stovall photograph; is that correct?

Sergeant KIRK. That is right.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of these exhibits.

Chairman STOKES. Without objection they may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-185

Mr. GOLDSMITH. I would ask that Sergeant Kirk be given an opportunity to examine JFK F-185.

Sergeant, would you identify that exhibit?

Sergeant KIRK. Yes, sir. That is a photographic enlargement. It is an actual and accurate copy of 133-A, Stovall.

Mr. GOLDSMITH. Would you explain how the Stovall print was produced?

Sergeant KIRK. Yes, sir. This has some unusual artifacts on it as well to tell you it was made other than as a normal photograph would be. I would draw your attention to the black circle and the black border that exists on the bottom of the photograph. This is

indicative of someone taking a sheet of 8 by 10 enlarging paper and cutting it in half into two 5- by 8-inch pieces of paper.

We have established it was placed into a convertible easel known as a three-way easel. This is an air-quipt four-way, one which was in production and in use extensively in the country during 1963. The circle was caused by a popper which holds the bumper onto this easel, so that when it is used on the other side, these bumpers serve as feet and it is clear where light is allowed to pass through.

When the individual who wanted to make some 5 by 7's and didn't have 5 by 7 paper, he or she took 8 by 10 paper and cut it in half and probably was in a hurry because they did not bother to cut off the bottom part of the paper because what happened was that part of the paper was sticking out from the bottom of the easel. This is exposed by the negative, by the overspill from the enlarger.

So that the image area of the enlarging easel received the photograph and there was still light hitting the entire part of the easel so some of the light went down into the hole that holds the foot onto this easel creating the circle and the overspill created the black border across the bottom.

I inserted this at the beginning of today's hearings and left it under these photographic lights. As you can see, you can see the border on the bottom of the print and if you look closely, there is the circle that was created by the light striking the paper today.

Mr. GOLDSMITH. Sergeant Kirk, was that print produced from the original negative?

Sergeant KIRK. Yes, sir; it was.

Mr. GOLDSMITH. In other words, it is a first generation print?

Sergeant KIRK. Yes, sir; it is.

Mr. GOLDSMITH. How can you tell that?

Sergeant KIRK. We find the same information in it we found from the other first generation prints. The negative shows the same type of abuse, emulsion tears in it. They are sharp and well defined and so are the scratches sharp and well defined.

Mr. GOLDSMITH. Is this print cropped?

Sergeant KIRK. Yes, sir.

Mr. GOLDSMITH. Can you explain in what way it has been cropped?

Sergeant KIRK. We are still dealing with a square negative and we got a rectangular image so we had to have cropping somewhere.

Mr. GOLDSMITH. Can you tell the purpose for which it was cropped?

Sergeant KIRK. I suppose somebody wanted some 5 by 7's as opposed to two 5 by 5's or 7 by 7's.

Mr. GOLDSMITH. You testified this print was made from the original negative. Was that negative also used to produce the De Mohrenschildt print?

Sergeant KIRK. Yes, it was.

Mr. GOLDSMITH. Was that negative ever provided to the Warren Commission?

Sergeant KIRK. No, sir; it was not.

Mr. GOLDSMITH. Has it been made available to the committee?

Sergeant KIRK. No, sir; it has not.

Mr. GOLDSMITH. Do you know where it is today?

Sergeant KIRK. No, sir; I do not.

Mr. GOLDSMITH. Let me rephrase that. Your testimony then is that the print which was given to the committee by a former Dallas police officer was derived from an original negative?

Sergeant KIRK. Yes, sir; it was.

Mr. GOLDSMITH. Sergeant, have you summarized at this time the materials that were reviewed by the committee's photography panel?

Sergeant KIRK. We examined all the photographs that are depicted here on this flow chart and it is the opinion of the panel that these are all first generation photographs.

Mr. GOLDSMITH. And of the three first generation photographs that you examined, there were three negatives. Of those three original negatives, only one has been made available to the Warren Commission and to this committee; is that correct?

Sergeant KIRK. That is correct, sir.

Mr. GOLDSMITH. And the other two negatives were at some time, it appears, in the possession of Dallas Police Department personnel?

Sergeant KIRK. That could be a fair assumption, yes, sir.

Mr. GOLDSMITH. Sergeant, have any other first generation prints been discovered?

Sergeant KIRK. Yes, sir.

Mr. GOLDSMITH. What print are you referring to now?

Sergeant KIRK. It is identified in the Warren Commission report as Commission exhibit 134.

Mr. GOLDSMITH. I would ask that Sergeant Kirk be handed Warren Commission exhibit 134 which corresponds with JFK F-398. Would you identify that?

Sergeant KIRK. Yes, sir. This is a photograph that is presently in the custody of the National Archives. It was reproduced in the Warren Commission report and identified as Commission exhibit 134.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this item.

Chairman STOKES. Without objection it may be entered into the record.

[See exhibit F-185.]

Mr. GOLDSMITH. I will also note for the record that Warren Commission exhibits 133-A and B as well as the negative will be introduced into the record at this time. To my knowledge they have not been assigned exhibit numbers, or at least I will ask you to admit them into the record.

[Warren Commission exhibits 133-A and B are on file on permanent possession at the National Archives.]

Sergeant Kirk, how was this particular print discovered?

Sergeant KIRK. This past weekend I was reading over some of the Warren Commission reports. I detected a sentence in there that as a police officer investigator did not correspond with what I thought would be proper investigative techniques.

In the report it quoted Captain Fritz as saying he showed Lee Harvey Oswald one enlargement and one small photograph. When I looked at the 134 as it was identified in the Warren Commission report I could see that it was an enlargement of 133-A. I thought

at first this might be a reason why Mr. Oswald said that is a fake picture, because as you copy photographs, it gives the illusion that they have been tampered with.

I thought, why would someone go to the trouble of copying a photograph if they had the original evidence to approach a suspect with. I thought this kind of strange. So I asked the committee if I could go over to the Archives on Monday and look at Commission exhibit 134.

Mr. GOLDSMITH. What did you discover when you examined that exhibit?

Sergeant KIRK. I looked at the photograph and formed an opinion. As has been the policy of the panel, we seek another opinion from another member of the panel and I withheld my conclusion until Mr. McCamy could go over them Tuesday and examine the photograph. After he did that, we both reached the same conclusion, that 134 is a first generation print.

Mr. GOLDSMITH. By first generation print you mean it came from the original negative?

Sergeant KIRK. It came from the original negative, yes, sir.

Mr. GOLDSMITH. In your opinion, how was this print produced?

Sergeant KIRK. The photographic paper was placed in an 8 x 10 easel and the print was produced and it creates the aesthetic-like border that you see here. So, there is some cropping.

Mr. GOLDSMITH. Sergeant, what notation, if any, appears on the back of this print?

Sergeant KIRK. There is an impression from a rubber stamp that identifies this as a Dallas Police Department photograph. It is dated 11-23-63.

Mr. GOLDSMITH. That print comes from the same original negative as De Mohrenschildt 133-A and 133-A, Stovall.

Sergeant KIRK. Yes, it does.

Mr. GOLDSMITH. Sergeant, if that print is a first generation print, which means it came from the original negative, are you able to state whether that original negative was ever in the possession of the Dallas Police Department personnel?

Sergeant KIRK. This photograph is stamped Dallas Police Department photograph and it is identified as the photograph that Captain Fritz showed to Lee Harvey Oswald.

Mr. GOLDSMITH. Does this photograph come from one of the negatives that has not been made available to the Warren Commission and to this committee?

Sergeant KIRK. Yes, sir, it does.

Mr. GOLDSMITH. After reviewing these materials, what was the next step in the panel's analysis of the backyard pictures?

Sergeant KIRK. The panel thought it best then to examine the camera that is purported to have been used to take the backyard photographs.

Mr. GOLDSMITH. At this point I would ask that Sergeant Kirk be given what has been marked as JFK F-381, it is a Warren Commission exhibit as well. I will ask him to identify it.

Before I do, Sergeant, would you prefer to remain standing or be seated?

Sergeant KIRK. Whatever is more convenient to the committee. I can work either way.

Mr. GOLDSMITH. Why don't you stand for now and let me know if you would like to sit down.

Why was it necessary for you to examine the camera?

Sergeant KIRK. First of all, Marina Oswald testified that she took the photographs with this camera. Second, it was important to the panel, if we could establish that this camera was used to take the photographs, it would establish the parameters as far as equipment-wise on how the photographs had to be taken, whether or not they were authentic or fake.

Mr. GOLDSMITH. When you were examining the camera, what was the specific purpose of examining it in terms of the materials that you were working with? In other words, did you want to see whether those materials had been originally exposed in the Oswald camera?

Sergeant KIRK. Yes, we had one negative and we also had the De Mohrenschildt which was a full frame negative print. We distinguished certain identifiers or the signature of the camera was found on the negative.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of JFK F-381.

Chairman STOKES. Without objection it may be entered into the record.

[JFK exhibit F-381 was entered previously.]

Mr. GOLDSMITH. Sergeant, was this the subject of your analysis?

Sergeant KIRK. Yes, sir, it is.

Mr. GOLDSMITH. How did the panel attempt to establish whether the negatives to the backyard pictures had originally been exposed in Oswald's Imperial Reflex camera?

Sergeant KIRK. There were two tests conducted, one by scientists at the Rochester Institute of Technology and an independent examination conducted by myself here at the Washington, D.C. Metropolitan Police Photographic Laboratory.

Mr. GOLDSMITH. What characteristics were you looking for?

Sergeant KIRK. We wanted to see if this photograph produced the identifiers or the signature that was detected on negatives 133-B and 133-A, De Mohrenschildt.

Mr. GOLDSMITH. You made reference to identifiers or signature. What do you mean when you use those terms?

Sergeant KIRK. Most cameras, particularly inexpensive cameras that have been manufactured by molded plastic, have certain imperfections in them. A lot of imperfections are found around the film plane aperture, as some call it, the part of the camera the film lays against to be exposed.

Now people who manufacture these types of cameras do not worry too much about the frame-edge markings because they know the type of person who would buy this camera would send the film to the corner drugstore and they know the frame is going to be cropped off anyway to create the white borders I referred to earlier.

Mr. GOLDSMITH. So are frame-edge markings one of the identifiers to which you referred?

Sergeant KIRK. We wanted to find out and we asked the Rochester Institute of Technology to obtain two replica cameras like this. They obtained two cameras from the International Museum of

Photography located at Eastman House in Rochester, New York and conducted tests with those cameras for us.

Mr. GOLDSMITH. My specific question was: What do you call these identifiers, these terms that you referred to as being the equivalent of a signature? One I take is frame edge marks.

Sergeant KIRK. That is correct, and scratches that were introduced into the image area itself by the fact that the film was dragging across its plastic.

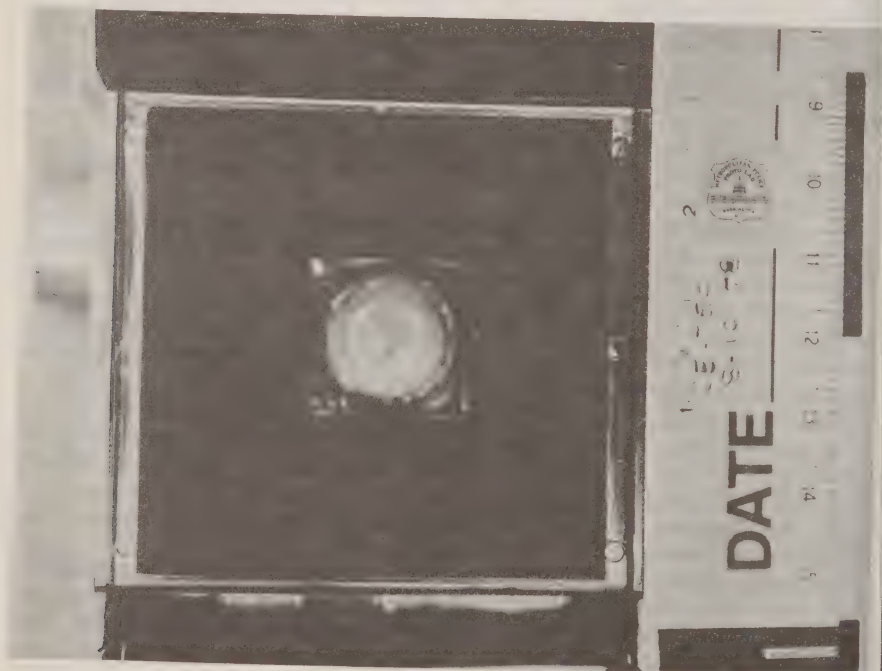
Mr. GOLDSMITH. Those would be camera scratch marks?

Sergeant KIRK. Yes.

Mr. GOLDSMITH. I would ask that you refer now to what has been marked for identification as JFK F-187. I move for the admission of this item, Mr. Chairman.

Chairman STOKES. Without objection it will be entered into the record.

[The information follows:]



JFK EXHIBIT F-187

Mr. GOLDSMITH. Mr. Chairman, may I have a moment? Sergeant, would you identify this exhibit?

Sergeant KIRK. Yes, sir. It is a photograph of the film plane of the Imperial Reflex camera identified as Commission Exhibit 750. To orientate you, this is the supply well where the fresh film is inserted. The film is drug across this plane to a take-up reel at the top of the camera.

Mr. GOLDSMITH. Are you able to explain from that exhibit how camera scratch marks frame edge marks are caused?

Sergeant KIRK. More expensive cameras would have a stainless steel roller to keep the film from actually dragging across the surface. Since that does not have a case, the film is forced to be drug across this film plane which would produce scratches. Also, you can see here, these are the points where the plastic mold was attached and when the mold was removed, it will bring certain fragments of the plastic away from it that will spill out of the mold. It makes an imperfect edge around the image area of the camera.

Mr. GOLDSMITH. At this time I would ask that Sergeant Kirk be shown what has been marked for identification as JFK F-190.

Sergeant Kirk, I would ask that you identify this exhibit and explain how the frame edge marks and camera scratch marks for Oswald's camera were established?

Sergeant KIRK. Yes, sir. This is a test exposure that we made off the roof of police headquarters on August 1 of this year.

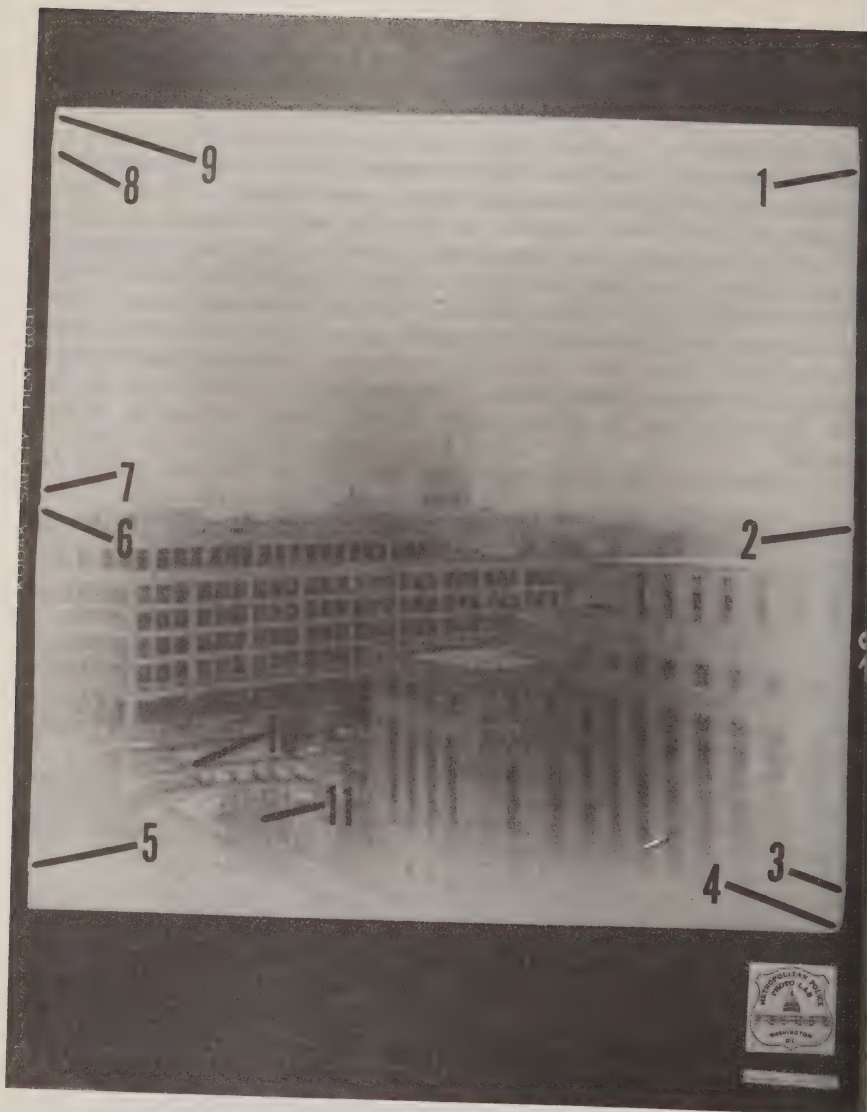
To orientate you, this is the new Labor Department Building and, of course, the Capitol Building is in the background.

We found after developing the negative and intentionally under-exposing it so that we could see the frame edges, because this camera tends to put more exposure on the center of the negatives than around the edges, we found the signature or identifiers around the frame edge markings and two distinctive scratches, that regardless of how many times we ran film through the camera, all showed up in exactly the same location.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of JFK F-190.

Chairman STOKES. Without objection it may be entered into the record at this point.

[The information follows:]



JFK Exhibit F-190

Mr. GOLDSMITH. Sergeant Kirk, why are frame edge marks and camera scratch marks useful in determining why a particular camera was used to take a particular picture?

Sergeant KIRK. Well, throughout the years it has been pretty common knowledge in the forensic sciences that cameras do leave their signatures, especially in inexpensive brands. Years ago during World War II when they were trying to identify what footage was shot by what cameras, laboratory technicians actually etched markings into the frame so they could identify one camera from another.

Mr. GOLDSMITH. What effort, if any, was made to verify whether the frame edge marks and camera scratch marks produced by Oswald's camera were really unique?

Sergeant KIRK. As I said, RIT scientists obtained two duplicate cameras from the International Museum of Photography located at the Eastman House in Rochester and exposed some test negatives.

Mr. GOLDSMITH. I would ask Sergeant Kirk be shown JFK F-191. Would you explain now, Sergeant Kirk, what type of comparison was made?

Sergeant KIRK. Yes, sir. This is exemplary of the types of negatives obtained from the two test cameras. One of the things that are obvious here, that you have identifiers at approximately the same location as the Oswald camera. That is because you have these three corks here for the plastic to go into the mold, but they are unique and different from this in the other camera. Indeed you will see more in the other camera because this camera had not been used much before it was placed in the museum. As film drags across this camera, it wore off some of the small pieces of plastic that were sticking out.

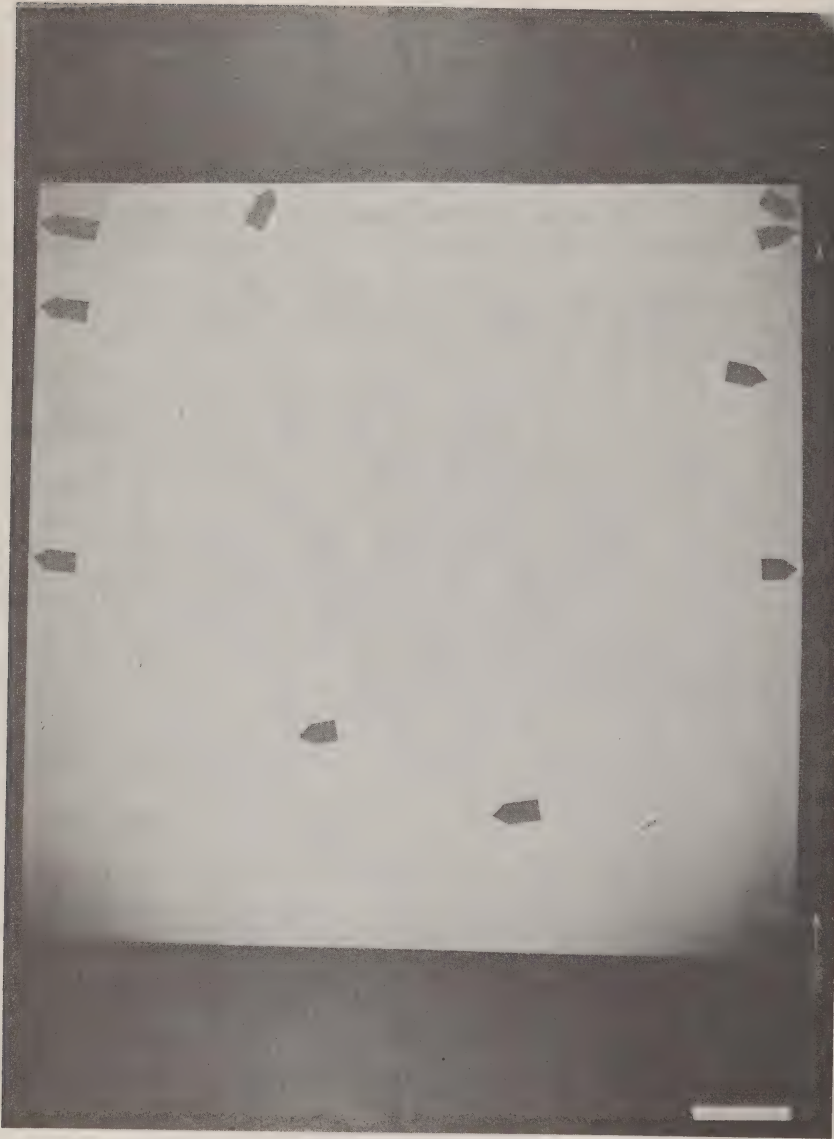
Mr. GOLDSMITH. Why does this exhibit not have numbers whereas the one to the right does have numbers?

Sergeant KIRK. I didn't want to confuse the committee by thinking that I was trying to tell them that point one in this chart was identical to point one on that chart because they are nowhere near similar. They are totally different and unique.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of JFK F-191.

Mr. FITHIAN [presiding]. Without objection it is so ordered.

[The information follows:]



JFK EXHIBIT F-191

Mr. GOLDSMITH. At this time I would ask Sergeant Kirk be shown JFK F-188 and F-397. Would you identify these two exhibits?

Sergeant KIRK. Yes, sir. The enlargement on the top is a print made from the 133-B negative, the only negative that we had to work from. The photograph on the bottom is made from a copy photograph and enlarged from 133-A, DeMohrenschildt.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of these items.

Mr. FITHIAN. Without objection they may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-188



JFK EXHIBIT F-397

Mr. GOLDSMITH. Would you explain in some detail what analysis you did with these two exhibits?

Sergeant KIRK. Yes, sir. We intentionally took the 133-B negative and withheld the exposure around the edge markings. As I said earlier, the camera tends to expose more in the center than around the edges. We wanted to be able to see if we could pick up the same identifiers or the camera signature in the 133-B negative as was in our test negative exposed this year.

Mr. GOLDSMITH. What was the result?

Sergeant KIRK. The identifiers are there, all of them, and in my opinion the same camera that produced the test photograph this year produced the 133-B backyard photograph.

Mr. GOLDSMITH. Of the backyard picture showing Oswald with the rifle, were only the DeMohrenschildt print and the 133-B negative studied for frame edge markings?

Sergeant KIRK. That is correct, sir.

Mr. GOLDSMITH. Why is that?

Sergeant KIRK. Because those were the only material we had to show the frame edge markings.

Mr. GOLDSMITH. Does the DeMohrenschildt print have fewer identifying frame marks on it than the 133-B negative?

Sergeant KIRK. It does if you look at it with this type of lighting under which it was photographed for the exhibit today. Items 2, 6, 7, 10 and 11 are visible if you look at the photograph under reflected light.

However, if you place the original print on a light box and look at it from light projected through the print, if you look at it using a

small power magnifier you would be able to pick up the other identifiers that I put in here with dashes.

Mr. GOLDSMITH. I understand the photography panel was able to study only the DeMohrenschildt print and the 133-B for edge marks. What materials were studied for the scratch mark analysis?

Sergeant KIRK. All of the prints.

Mr. GOLDSMITH. Why is that?

Sergeant KIRK. Because the scratches we were looking for were in the part of the photograph that would not be cropped out in any of these areas. We found the same scratch marks precisely the same distance apart in the same location in all the first generation prints.

Mr. GOLDSMITH. I am sorry. I missed the last part of your answer. Would you state the results of your scratch mark analysis?

Sergeant KIRK. We found the same scratch marks in the image area such as identifiers 10 and 11 in all the first generation prints on this flow chart.

Mr. GOLDSMITH. Sergeant, have you investigated the allegation that the Oswald Imperial Reflex camera was used only to take the backyard pictures of Oswald with the rifle?

Sergeant KIRK. Yes, sir, I have.

Mr. GOLDSMITH. When did you do that?

Sergeant KIRK. August 1 of this year.

Mr. GOLDSMITH. Exactly how did you go about examining this issue, Sergeant?

Sergeant KIRK. I went to the National Archives and requested to see all of the photographs and all of the photographic negatives that were turned over to the Warren Commission and listed as that material that was taken during the execution of search warrants from the personal effects of Lee and Marina Oswald.

Mr. GOLDSMITH. What did these photographs portray, Sergeant?

Sergeant KIRK. Most were family-type snapshots, scenes, an older child and a baby in a crib. They depicted Mrs. Oswald and a child playing with a hose pipe, spraying water on each other. It depicted Mr. Oswald holding an infant in his arms, family type photographs.

Mr. GOLDSMITH. I would ask that Sergeant Kirk be shown JFK F-189. Sergeant, would you identify that exhibit?

Sergeant KIRK. Yes, sir. It is a first generation print made from a negative obtained from the Archives. It is from one of approximately two dozen negatives that were on file at the Archives. It is a photograph of a young child. The child has been identified by Marina Oswald Porter as being one of the children of she and Lee Harvey Oswald.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit.

Mr. FITHIAN. Without objection it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-189

Mr. GOLDSMITH. Was this exhibit compared with any other materials or photographs exposed in Oswald's camera?

Sergeant KIRK. Yes, sir, it was.

Mr. GOLDSMITH. What was the result of that comparison?

Sergeant KIRK. The comparison was made with the test negative, the 133-B backyard photograph, the 133-A DeMohrenschildt photograph, and they were found to contain the identical identifiers and scratch marks.

It is our opinion that the same camera produced the baby picture.

Mr. GOLDSMITH. What were the panel's overall conclusions regarding the frame edge marks and camera scratch marks that it evaluated?

Sergeant KIRK. That it is a reliable source of identification and it is our opinion that the camera did indeed produce these photographs.

Mr. GOLDSMITH. When you say these photographs, you are referring to the backyard pictures?

Sergeant KIRK. The backyard pictures and the baby picture.

Mr. GOLDSMITH. Thank you.

Sergeant Kirk, please resume your seat.

I might state, Mr. Chairman, that the agenda for today has been changed somewhat. We have a witness here to give testimony on the issue of handwriting analysis. For that reason I have been asked to request of Sergeant Kirk and Mr. McCamy that we defer the remainder of their testimony until tomorrow so that the handwriting expert can testify today. He informs us that he has to appear in court tomorrow and would not be available to be here tomorrow.

Sergeant Kirk, Mr. McCamy, would you be available tomorrow?

Sergeant KIRK. Yes, sir.

Mr. GOLDSMITH. Mr. Chairman, I would also like to request that JFK F-188 and F-397 be admitted into the record.

Mr. FITHIAN. Without objection it is so ordered.

[The exhibits referred to were previously admitted into the record.]

Mr. GOLDSMITH. Thank you.

Mr. BLAKEY. Thank you, Mr. Chairman. In the case of the photograph turned over to the committee, the backyard photograph by Mrs. DeMohrenschildt, exhibit 133-A, the committee decided to attempt to verify that the inscription on the back of the photographs was indeed written by Lee Harvey Oswald who had apparently signed it. To this end, 45 samples of Oswald's handwriting were selected and experts in the field of document identification were asked to examine them.

Today an expert will discuss the three samples. They are a signature from Oswald's fingerprint card when he was arrested in New Orleans in August 1963; his passport application dated June 24, 1963, and a list of handwritten questions found among his possessions.

A member of the committee's panel on handwriting experts is here today to discuss the findings with regard to the inscription. He is Joseph P. McNally.

Mr. McNally received his B.S. and an M.S. in police science from the John Jay College of Criminal Justice, University of the City of New York. He started in the field of questioned document identification in 1942 with the New York Police Laboratory. He has been supervisor of the Document Identification Section of the Police Laboratory, training officer in the Police Academy, commanding officer of the Police Laboratory and handwriting expert in the District Attorney's office of New York County. He retired from the Police Department with the rank of captain in 1972 and entered private practice in the field of document identification. He serves as consultant to New York's Human Resources Administration.

Mr. McNally is a fellow of the American Academy of Forensic Sciences, a member of the American Society of Questioned Document Examiners, the International Association for Identification,

and the American Society for Testing and Materials. He has lectured at the University of the City University of New York, Rockland College, and the New York Police Academy.

Mr. McNally has been involved in thousands of cases where document evidence has been supremely important.

It would be appropriate at this point, Mr. Chairman, to call Mr. McNally.

Mr. FAUNTROY [presiding]. Mr. McNally, do you swear the testimony you will give is the truth, the whole truth, and nothing but the truth, so help you God?

TESTIMONY OF JOSEPH P. McNALLY

Mr. McNALLY. I do.

Ms. BRADY. For the record, would you please state your full name?

Mr. McNALLY. Joseph F. McNally.

Ms. BRADY. Mr. McNally, who were the other members of the handwriting panel on which you served for the committee?

Mr. McNALLY. David Purtell and Charles Scott.

Ms. BRADY. To the best of your knowledge, have they both been qualified as experts in the area of handwriting examination?

Mr. McNALLY. They have been.

Ms. BRADY. What analysis was the panel asked to perform?

Mr. McNALLY. We were asked to examine and compare certain writings and signatures and also to determine whether there were any alterations, falsifications, or eradications on these particular documents.

Ms. BRADY. Whose samples of handwriting did the panel examine?

Mr. McNALLY. We examined samples of the handwriting of Lee Harvey Oswald, Jack Ruby, and also of Marina Oswald.

Ms. BRADY. How many documents allegedly written by Lee Harvey Oswald did the panel examine?

Mr. McNALLY. We examined 45 approximately, some quite lengthy.

Ms. BRADY. Did you examine the originals or copies of those documents?

Mr. McNALLY. In the cases where originals were available, we examined the originals. In cases where only the copies were available, we examined those also.

Ms. BRADY. At this time would the clerk please hand the witness exhibit JFK F-183?

Mr. McNally, do you recognize this document?

Mr. McNALLY. I do.

Ms. BRADY. Would you identify it for the record, please?

Mr. McNALLY. This is JFK exhibit F-183. It is a photograph ostensibly of Lee Harvey Oswald. On the back it contains some writing. Holding it in the way I am holding it, down in the lower lefthand corner is writing, "To my friend George from Lee Oswald, 5/IV/63."

In the lower righthand corner is the writing, "Copyright G. deM."

In the upper center of the back of this photograph are three lines of writing which have been described as being in the Russian language.

To the lefthand side of the back of this photograph are the initials JJM with a line under it and a date 4/1/77 which is apparently an identification marking.

Ms. BRADY. At this time may the witness be shown the enlargements which are marked JFK F-382 and F-383?

Mr. McNally, are these accurate enlargements of the photograph you have just described?

Mr. McNALLY. They are.

Ms. BRADY. Mr. Chairman, JFK F-183 has previously been entered into the record. At this time I would ask that F-382 and F-383 also be entered into the record.

Mr. FAUNTROY. Without objection it is so ordered.

[Exhibits referred to were previously entered.]

Ms. BRADY. At this time would the clerk please hand the witness the original of F-401 which is identified as the U.S. passport application dated June 24, 1963 and designated Warren Commission exhibit No. 781.

Do you recognize this document, Mr. McNally?

Mr. McNALLY. I do.

Ms. BRADY. Was it also examined by your panel?

Mr. McNALLY. It was.

Ms. BRADY. May the witness also at this time be shown the enlargements of that document designated as JFK F-401.


Mr. McNally, are those enlargements accurate enlargements of the passport application you have examined?

Mr. McNALLY. They are.

Ms. BRADY. At this time, Mr. Chairman, may JFK F-401 be entered in the record?

Mr. FAUNTROY. Without objection it is so ordered.

[The information follows:]

DEPARTMENT OF STATE PASSPORT APPLICATION (Before Completing this Application, Read Information for Passport Applicants on Page 4)				(Passport Office Use Only)	
PART I - TO BE COMPLETED BY ALL APPLICANTS					
(First name)		(Middle name)		(Last name)	
JOHN		MICHAEL		JAMES	
I, <u>JOHN MICHAEL JAMES</u> , a citizen of the United States, do hereby apply to the Department of State for a passport.					
MAIL PASSPORT TO					
STREET <u>1111 PINE STREET</u>					
CITY <u>NEW ORLEANS</u> STATE <u>LA</u>					
IN CASE OF (IF NECESSARY)					
DATE OF BIRTH (Month, day, year)		PLACE OF BIRTH			
JUN 25, 1933		NEW ORLEANS, LA			
HEIGHT	HAIR	EYES	APPROXIMATE DATE OF DEPARTURE		
5 FT 10 IN	BRN	GRN	JUL 1, 1963		
VISIBLE DISTINGUISHING MARKS			OCCUPATION		
NONE			Photographer		
MY PERMANENT RESIDENCE (Street address, City, State) (If same as in mailing block, write "Same")					COUNTY OF RESIDENCE
757 FRENCH ST. NEW ORLEANS, LA					U SA
PERSONS TO BE INCLUDED IN PASSPORT					
This section to be completed only if wife or husband is to be included in applicant's passport (Include photographic likenesses in group photo)					
(WIFE'S) (HUSBAND'S) FULL LEGAL NAME					
(WIFE'S) (HUSBAND'S) LAST U. S. PASSPORT WAS OBTAINED FROM					
LOCATION OF ISSUING OFFICE	DATE OF ISSUANCE	NUMBER			
		<input checked="" type="checkbox"/> SUBMITTED HEREWITH <input type="checkbox"/> OTHER DISPOSITION (STATE)			
This section to be completed only if children are to be included in applicant's passport (Include photographic likenesses in group photo)					
NAME IN FULL	PLACE OF BIRTH (City, State)	DATE OF BIRTH	RESIDED IN THE U. S. FROM TO		
STAPLE ONE PHOTO BELOW DO NOT MAR FACE		HAVE YOU PREVIOUSLY APPLIED FOR A U. S. PASSPORT? (If answer is "Yes", complete box below)			
		<input type="checkbox"/> YES <input type="checkbox"/> NO			
		MY LAST U. S. PASSPORT WAS OBTAINED FROM (Name: If included in another's passport, state name below):			
		LOCATION OF ISSUING OFFICE		DATE OF ISSUANCE	
		NUMBER			
		JCS HARRIS, CALIF		SEP 12, 1950	
		1733242 C + A - 3			
		<input checked="" type="checkbox"/> SUBMITTED FOR CANCELLATION <input type="checkbox"/> OTHER			
Commission Exhibit No. 781					
JUN-24-63 600004 L. 111 9.00					
(Passport Office Use Only)					
JUN-24-63 600004 L. 111 1.00					
FEE <u>9</u> EXEC. <u>1</u> TAX <u>1</u> POST. <u>1</u>					

FATHER'S NAME <i>ROBERT LEE OSWALD</i>		FATHER'S PLACE OF BIRTH <i>NEW ORLEANS, LA</i>		FATHER'S DATE OF BIRTH <i>1945</i>	<input checked="" type="checkbox"/> U. S. CITIZEN <input type="checkbox"/> NOT U. S. CITIZEN
MOTHER'S MAIDEN NAME <i>MARINA PRESAROVA</i>		MOTHER'S PLACE OF BIRTH <i>NEW ORLEANS, LA</i>		MOTHER'S DATE OF BIRTH <i>1907</i>	<input type="checkbox"/> U. S. CITIZEN <input type="checkbox"/> NOT U. S. CITIZEN
<input type="checkbox"/> I WAS NEVER MARRIED <input checked="" type="checkbox"/> I WAS LAST MARRIED ON <i>MARCH 31 1961</i>		TO (Full legal name - complete whether widowed or divorced) <i>MARINA PRESAROVA</i>			
WHO WAS BORN AT <i>MARINA PRESAROVA</i>		ON (Date of birth) <i>JULY 17, 1907</i>			
<input type="checkbox"/> WHO IS A U. S. CITIZEN <input checked="" type="checkbox"/> WHO IS NOT A U. S. CITIZEN		<input checked="" type="checkbox"/> MARRIAGE NOT TERMINATED <input type="checkbox"/> MARRIAGE TERMINATED BY (DEATH) (DIVORCE) ON _____			
<input checked="" type="checkbox"/> I WAS NEVER PREVIOUSLY MARRIED <input type="checkbox"/> I WAS PREVIOUSLY MARRIED ON _____		TO (Full legal name) ON (Date of birth)			
WHO WAS BORN AT		PREVIOUS MARRIAGE TERMINATED BY (DEATH) (DIVORCE) ON _____			
<input type="checkbox"/> FORMER HUSBAND OR WIFE WAS U. S. CITIZEN <input type="checkbox"/> FORMER HUSBAND OR WIFE WAS NOT U. S. CITIZEN		ON _____			
(IF MARRIED MORE THAN TWICE, SET FORTH FACTS IN A SUPPLEMENTAL STATEMENT)					
PROPOSED TRAVEL PLANS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			PURPOSE OF TRIP <i>TOURIST</i>		LIST EACH COUNTRY TO BE VISITED <i>ITALY FRANCE GERMANY HOLLAND USSR FINLAND ITALY POLAND</i>
PORT OF DEPARTURE <i>NEW ORLEANS</i>		APPROXIMATE DATE OF DEPARTURE <i>SEP 20 1963</i>			
NAME OF SHIP OR AIRLINE <i>LYONS LINE</i>		NUMBER OF PREVIOUS TRIPS ABROAD WITHIN LAST 12 MONTHS —			
MEANS OF TRANSPORTATION SHIP <input checked="" type="checkbox"/> AIR <input type="checkbox"/> OTHER <input type="checkbox"/>		PLEASE INDICATE WHETHER YOU EXPECT TO TAKE ANOTHER TRIP ABROAD <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES, WITHIN _____ <input type="checkbox"/> YEAR <input type="checkbox"/> 2 YEARS <input type="checkbox"/> 3 YEARS			
DEPARTURE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/>		PROPOSED LENGTH OF STAY <i>3 mos - 1 yr.</i>			
IN THE EVENT OF DEATH OR ACCIDENT NOTIFY					
NAME IN FULL <i>LILIAN MARATH</i>		RELATIONSHIP <i>AUNT</i>		STREET ADDRESS, CITY, STATE <i>757 FRENCH ST. NEW ORLEANS, LA</i>	
<p>I have not (and no other person to be included in the passport has), since acquiring United States citizenship, been naturalized as a citizen of a foreign state; taken an oath or made an affirmation or other formal declaration of allegiance to a foreign state, entered or served in the armed forces of a foreign state; accepted or performed the duties of any office, post or employment under the government of a foreign state or political subdivision thereof; voted in a political election in a foreign state or participated in an election or plebiscite to determine the sovereignty over foreign territory; made a formal renunciation of nationality, either in the United States or before a diplomatic or consular officer of the United States in a foreign state; ever sought or claimed the benefits of the nationality of any foreign state; been convicted by a court or court martial of any offense involving espionage, treason, or conspiracy to overthrow, put down or to destroy by force, the Government of the United States; or bearing arms against the United States; or remained outside of the jurisdiction of the United States for the purpose of evading or avoiding training and service in the military, air or naval forces of the United States; and I am not and have not been at any time during the period of 12 full calendar months preceding the date of this application (and no other person to be included in the passport is or has been at any time during the said period) a member of any organization registered or required to register as a Communist organization under Section 7 of the Subversive Activities Control Act of 1950, as amended. (50 U.S.C. 786)</p> <p>(If any of the above-mentioned acts or conditions have been performed by or apply to the applicant, or to any other person to be included in the passport, the portion which applies should be struck out, and a supplementary explanatory statement under oath (or affirmation) by the person to whom the portion is applicable should be attached and made a part of this application.)</p> <p>I solemnly swear (or affirm) that the statements made on all the pages of this application are true and that the photograph attached is a likeness of me and of those persons to be included in the passport.</p> <p style="text-align: center;">OATH OF ALLEGIANCE</p> <p>Further, I do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; and that I take this obligation freely, without any mental reservation, or purpose of evasion; So help me God.</p> <p style="text-align: right;"><i>L. H. Conrad</i> (To be signed by Applicant in presence of a Clerk of Court or Passport Agent)</p> <p>Subscribed and sworn to (affirmed) before me this _____ day of _____, 19____</p> <p>(SEAL OF COURT) Clerk of the Court at _____</p> <p>* See paragraph 6 of instruction.</p>					

JFK EXHIBIT F-401B

Ms. BRADY. Mr. McNally, did the handwriting panel compare the writing on the rear of the photograph with the signature on the passport application?

Mr. McNALLY. Yes; we did.

Ms. BRADY. What conclusion was reached by the panel about those two documents?

Mr. McNALLY. We concluded that the writing—particularly the signature of Lee Harvey Oswald on the lower lefthand corner on the back of the photograph and the signature Lee H. Oswald on the passport application—all of these signatures were written by one, the same individual.

Ms. BRADY. Will you please describe the techniques which were used to make that determination?

Mr. McNALLY. In making this examination and comparison, the overall approach to it is to actually look at the signatures and writings in juxtaposition one with the other. Taking into consideration, first of all, the gross characteristics involved in the writing process—that would include the skill of the writing, the slant pattern of the writing, the speed of the writing, the proportions of the letters within the name Lee H. Oswald, the ratio of the small letters to the capital letters insofar as height is concerned, the signature on the placement of the individual letters which make up the names Lee Harvey Oswald, the overall writing pattern of the writing in both the passport application and on the back of the photograph.

Much more specifically, we examined and compared the individual letters which make up these signatures Lee H. Oswald as to their design, form, construction, and execution of stroke. We looked for any particular differences or significant differences which may have occurred between the signatures and the writing on the back of the photograph versus the writing of the signatures Lee Oswald on the passport application. Also, an examination using a low power microscope was done of the letters that make up the signatures and the writing Lee Harvey Oswald and Lee H. Oswald to determine whether there were any interruptions in the line of writing, any discontinuity, any tremor, hesitations, or any indications of tracings or alterations on these particular signatures.

Specifically, the signature as written on the back of the photograph of Lee Oswald has been written in a firm, even handwriting. There is no interruption in the writing stroke other than what is occasioned by a natural gap in between the capital and the small letters; no indications of any uncertainty. It is a completely normal signature, consistent with the writing Lee Harvey Oswald and Lee H. Oswald on the passport application.

Ms. BRADY. Mr. McNally, if it would help, please go up to the illustrations and use the marker to identify what the points of comparison were.

Mr. McNALLY. The writing at the lower lefthand corner of the back of the photograph is rather dim and rather faint. As a matter of fact, it starts off very faintly, "To my friend George from Lee Oswald." As the writing goes on, of course, it becomes appreciably heavier and more legible. It sort of fades off at the date 5-IV-63.

The writing on the lower lefthand corner of this particular photograph is written in a fluent, even, free-flowing style. It is rather carelessly written as most normal handwritings are written.

The overall writing pattern of this particular area here agrees with the writing that we find here of Lee Oswald on this photograph and also over on this photograph. That free-flowing, completely normal style of writing in both of these signatures is repeated over here in the writing of Lee Oswald.

The specific area of letter design; the design of the capital L as we find here in the photograph, is repeated over here in the capital L of Lee on this particular photograph and also on this signature over here. The open, small groups of the "e's" in both of these signatures which tend to end abruptly here, of course, here in the ending part of Lee, is repeated over here in the writing of Lee on this particular document here, the photograph.

On the photograph, of course, there is no middle initial and we would have to move into the capital O of Oswald. In the signature on the photograph the "O" is written independently of the "s". It does not follow right through so there is a slight gap in between that capital "O" on the following "s".

On this particular photograph here on the passport application we have the same design of "O" and a gap, and we have the "s" separated from the "O". But the design form of the "O" here agrees with that over here.

The other signature of Oswald on the passport application is a slightly alternate form of signature which is actually a normal occurrence among individuals. There "O" joins right into the "s" so that we have a variation between this particular signature and the one over here.

Of course, it also quite obviously varies from the signature that we have in this particular section shown here.

In the "wa" combination of the signature here on the Oswald passport application as also the "wa" combination of this passport application on the photograph, is a slight weakness or slurring off as the "w" joins the "a". It occurs up in here and it occurs also in here.

That same design formation occurs in the "wa" formation of Oswald over on this particular signature here on the photograph. In the "ld" combination on the passport application, the signature here and the signature over here on the photograph, in each case the "l" is appreciably smaller than the following "d". The "d" sort of goes up. It is very tall here and the loop or the line which forms the loop on the lefthand side of that "d" does not go all the way down to the base line of writing. It sort of hangs in mid-air and it has quite a unique form. That occurs in this "d". It occurs in this "d". It also occurs in the "d" as written in Oswald over on the photograph. We have that same situation there on the photograph here the "l" is appreciably smaller than the ending "d".

As I remarked before, it is a free-flowing, fluent style written in a careless fashion. The signatures are consistent one with the other and, in effect, the writing on all three of these documents, or all three of these signatures, have been done by the same individual.

Ms. BRADY. Mr. McNally, was there any evidence of imitation, tracing, or alteration in any of the three signatures you have just discussed?

Mr. McNALLY. Absolutely not.

Ms. BRADY. Thank you.

Would you please resume your seat.

At this time would the clerk please hand the witness the original of the exhibit marked JFK F-400.

For the record, this exhibit is identified as the New Orleans fingerprint card from New Orleans police dated August 9, 1963. Do you recognize this document, Mr. McNally?

Mr. McNALLY. I do.

Ms. BRADY. Was it also examined by the handwriting panel?

Mr. McNALLY. It was.

Ms. BRADY. Did the panel examine the original or a copy of that document?

Mr. McNALLY. The original.

Ms. BRADY. May the witness be shown the enlargement of JFK F-400? Is this an accurate enlargement of the fingerprint card you examined, Mr. McNally?

Mr. McNALLY. It is.

Ms. BRADY. At this time may JFK F-400 be entered into the record? The record should also note that even though the fingerprint card is being entered into the record here, the fingerprint card will remain on permanent file at the FBI.

[The information follows:]

LEAVE THIS SPACE BLANK

TYPE OR PRINT

LAST NAME

OSWALD

FIRST NAME

LEE

MIDDLE NAME

HARVEY

MALE WHITE

HT (Inches)

5-9

WT

136

HAIR

Br

EYES

Br

DATE OF BIRTH

10-18-39

PLACE OF BIRTH

N.O.La.

CONTRIBUTOR AND ADDRESS

SUPERINTENDENT
POLICE DEPARTMENT
NEW ORLEANS, LA.

ALIASES

YOUR NUMBER

112-723

LEAVE THIS SPACE BLANK

PLACE FBI NUMBER HERE

CLASS. 15 I 25 W 100
L 21 U 001

SCARS AND MARKS

AMPUTATION

one

SIGNATURE OF OFFICIAL TAKING FINGERPRINTS

DATE

☐ CHECK IF NO REPLY IS DESIRED

REF.

Arthur M James

8-9-63

THUMB	INDEX	MIDDLE	RING	SMALL
20	15	17	17	
LEFT FOUR FINGERS TAKEN SIMULTANEOUSLY	LEFT THUMB	RIGHT THUMB	RIGHT FOUR FINGERS TAKEN SIMULTANEOUSLY	
RECEIVED BY: [Signature] 11-22-63 RECEIVED BY: [Signature] 11-22-63				

JFK EXHIBIT F-400

Ms. BRADY. Did your panel compare the signature Lee H. Owsald which appears on the fingerprint card with the signature on the photograph?

Mr. McNALLY. We did.

Ms. BRADY. What conclusion was reached about those two signatures?

Mr. McNALLY. We found that both signatures were written by the same individual.

Ms. BRADY. Did that contain the same investigation that you discussed about the passport application?

Mr. McNALLY. Yes, it did.

Ms. BRADY. Were there also characteristic points of comparison similar to what you just discussed?

Mr. McNALLY. Yes. They fit into the same area I mentioned previously. The writing of the capital L, the two small e's, the "Os" combination on this particular fingerprint card agrees with the passport application, but, of course, we have the alternate form of "Os" written on the photograph of Mr. Oswald which agrees with that "Os" combination on the lower left of the photograph of Oswald holding the gun and newspaper.

We, again, have in this particular fingerprint form the weakness on the connecting stroke between the "w" and "a" as that connecting stroke slurs off into the "a" and we have the combination of a small "l" and a quite large "d", with the ending section of the "d", that loop section of the "d" ending above the line of writing. That is a characteristic in all the signatures of Oswald.

Ms. BRADY. Mr. McNally, was there any evidence of tracing, alteration, or imitation in the signature on the fingerprint card?

Mr. McNALLY. No, it was a completely normal signature written quite fluently.

Ms. BRADY. Would the clerk at this time please hand the witness the original of the document marked JFK F-402. This is identified as a self-questionnaire consisting of a series of questions and answers about reactions to life in the Soviet Union. The document was previously designated Warren Commission exhibit 100.

Do you recognize this document?

Mr. McNALLY. I do.

Ms. BRADY. Was it also examined by the handwriting panel?

Mr. McNALLY. It was.

Ms. BRADY. Did the panel see it in the original?

Mr. McNALLY. They did.

Ms. BRADY. The pages of the original are discolored. Do you know what caused that?

Mr. McNALLY. Apparently this has been processed for the presence of latent fingerprints used in the chemical process described as silver nitrate.

What has happened here as always occurs with silver nitrate, if the silver nitrate is not bleached out it continues to develop so that actually it discolors the particular document on which it is applied over a period of time.

Ms. BRADY. Did that discoloration affect your ability to examine the document?

Mr. McNALLY. It makes it a little more difficult, particularly if you are taking a photograph of it because it is a very serious discoloration.

However, it has not obliterated the writing to a point where the identification is impossible.

Ms. BRADY. At this time may the witness be shown the enlargement of exhibit JFK F-402?

Are these enlargements accurate enlargements of the pages of the self-questionnaire?

Mr. McNALLY. They are.

Ms. BRADY. At this time I would ask that JFK F-402 be entered into the record.

Chairman STOKES. Without objection it may be entered into the record.

[The information follows:]

1. Q. WHY DID YOU GO TO THE USSR?

I went as a citizen of the U.S. (as a tourist) residing in a foreign country which I have a perfect right to do. I went there to see the land, the people and how their system works.

Q. What about these letters? I made no letters denigrating the U.S.!!
In correspondence with the U.S. Embassy I made no criticism
statements, only criticism I might have had was of which I did not make
Q. S. IS YOU MAKE STATEMENTS DENIGRATING THE U.S. THERE? NO

2. Q. What about that type recording? I made a recording for radio
the Moscow Journal Radio Travel Log, in which I ~~mentioned~~
spoke about right living and what I had seen in various
tourist circles. I expressed delight in all the interesting places.
I mentioned in the respect the University, Museum of Art,
Red Square, the Kremlin, I remember I changed this minute
recording by saying I spoke and people would not in Moscow only for

3. Q. DID YOU SPEAK ABOUT THE RECORDING OR TAKING WORK IN THE U.S.S.R.
under U.S. law a person may have the production of its U.S. by writing
or serving in the armed forces of a foreign state or taking on
the of allegiance to that state. I did none of these

4. Q. Did all workers in the USSR consider state work?

NO. Technically only plants working directly for the state,
usually defense. ~~all~~ all other plants are owned by the
workers who work in them.

5. Q. What about statements you make to U.P.I. that were made in 1954?

I was approached at the time of my arrival in the USSR
just after I had formally notified the U.S. Embassy in
Moscow of my future residence in the USSR.

by the newspapers, reporters in Moscow including
U.P.I. A.P.I. and Time Inc. were notified by the Embassy.
I did not see them. I answered questions and gave
statements to some members of U.P.I. requested her to
let me go. her action being very discreet, which is the
policy and purpose of U.S. ~~and~~ her version of what I said
just stated she said it is minimally called her to complaint of
this. It would be a bit apologized and said her editor and not
see her ~~and~~ and things. she said London was very specific
about the story. She in her account that she had already

that it) so still wasn't much else I could
 it. And I didn't expect that the story was even
 blown out of shape once it got to the U.S. The American
 the printed story was fabricated sensationalism.

6. why did you remain in the USSR for so long if you only wanted
 I resided in the USSR ~~until~~ until Gorbachev ^{when I}
 spoke the Embassy stating that I would like to go back.
 (my passport was at the Embassy for safekeeping) they
 invited me to Moscow for this purpose however it took
 me almost 1/2 year to get a permit to leave the city of
 Minsk for Moscow. In this connection I had to speak with
 from the Head Consulate to the Russian authorities in Minsk
 (the Russians are very bureaucratic and slow about letting
 foreigners travel about the country hence the delay)
 when I did get to Moscow the Embassy immediately gave
 me back my passport and advised me as to how to
 get a visit visa from the Russians for myself and
 my Russian wife. This long and tedious process took
 months from July 1962 until 1962, throughout
 you all almost 1 year was spent in trying to leave
 the country. That's why I was there so long not only for

7. are you a communist? Have you ever known a communist?

no of course not, I have never even known a communist,
 outside of the ones in the USSR but you can't help that.

8. What are the outstanding differences between the USA and USSR
 freedom of speech, travel, outpatient opposition to unequal
 policies, freedom to believe in god.

anyway, thank you sir; you are a real patriot!!

1. Q why did you go to the USSR?

I went as a mark of dissent and protest against American policies in foreign country my personal opinion of deteriorated and lower to the misguided line of reasoning of the U.S. and people. Q? what about those letters? I made several letters in which I expressed my strong feeling to the American Embassy who in Oct. 1959 I went there to legally sign my American citizenship and was refused this legal right.

Q 2^o Did you make statements against the U.S. then? yes
Q 2^o what about that tape recording? I made a recording for Radio Moscow which was broadcast the following month in which I spoke about the beautiful capital of the socialist world and all its progress.

3. Did you break laws by visiting or taking work in the USSR? I did in that I took an oath of allegiance to the U.S.A.

4. Did all work in the USSR considered state work? yes of course and in that respect I also broke U.S. law in accepting work under a foreign state.

5. What about statements you made to U.S. Agent Mrs. ...

I was approached by Miss Mosley and other reporters just after I had formally requested the American Embassy to legally sign my U.S. citizenship for a strong story was notified by the U.S. Embassy, not by me. I overheard them and made statements to Miss Mosley in regard to my reasons for coming to the USSR, her story was warped by her later, but in brief essence it was possible to say she had the threat printed.

6. Why did you remain in the USSR for so long if you only wanted to ...

I remained in the USSR for so long if you only wanted to a period - 2 years I did so because I was living quite comfortably I had plenty of money, one apartment and for lots of good eat. When asked I have all that?

7^o are you a communist? you ~~are~~ basically, although I hate the USSR and socialist system I still think Marxism can work under different circumstances.

8^o have you ever known a communist? not in the U.S.A.

1. statements to report.
2. ~~letter~~ to embassy
3. ~~type~~ according to Radio Moscow
- 4.

1. Soviet Report re the missile, numerous nights and, around
~~every~~ is log of events in Moscow called "Moscow Soviet Agency"
2. asking for confirmation about the to Soviet - 1949 Nov. 18

8. What are the most significant differences between the USSR and the U.S.
 now, except in the way the living standard is a little
 higher. Functions are about the same, medical aid and
 the educational system is. The USSR is better than
 in the U.S.A.

Ms. BRADY. Did the panel also compare the writing in this self-questionnaire with the signature on the rear of the photograph?

Mr. McNALLY. We did.

Ms. BRADY. What conclusions were reached by the panel?

Mr. McNALLY. We found that the writing on the self-questionnaire and the writing at the lower left of the photograph were written by one and the same individual.

Ms. BRADY. What characteristics or points of comparison existed in the two documents?

Mr. McNALLY. We were able actually to make a composite, so to speak, of the writing which exists in the lower part of that particular photograph in question. There is a great deal of writing on this particular self-questionnaire. Actually, the only particular letter which does not exist for comparison purposes on the self-questionnaire is the capital G in George which is written on the lower part of the back of the photograph.

Ms. BRADY. But there were still sufficient characteristics for a conclusion; is that correct?

Mr. McNALLY. There are.

Ms. BRADY. Is there any evidence of tracing, alteration, or imitation on the writing in the self-questionnaire?

Mr. McNALLY. No. That is a prime sample of a person scratching out a series of notes. It is very carelessly written and there is no indication of any artificiality about it at all. It is completely normal in appearances.

Ms. BRADY. Did you also examine the handwriting appearing in the lower righthand corner of the photograph which reads, "Copyright G. deM.?"

Mr. McNALLY. I did.

Ms. BRADY. Were you able to reach any conclusion about that writing and the writing of Lee Harvey Oswald?

Mr. McNALLY. That particular writing in the lower right hand corner was not written by Lee Harvey Oswald.

Ms. BRADY. On what did you base that determination?

Mr. McNALLY. A comparison of that particular writing there with the hand printing of Mr. Oswald on the passport application reveals absolutely no similarity between these two writings.

Ms. BRADY. Did you examine the handwriting of George De Mohrenschildt?

Mr. McNALLY. I did.

Ms. BRADY. Based on that examination, were you able to make any comparison between the writing on the photograph and the writing of George De Mohrenschildt?

Mr. McNALLY. I was not. Mr. De Mohrenschildt's writing is spidery, quite tremulous, and quite angular. The writing here is much firmer and the writing pattern is more rounded rather than angular.

Ms. BRADY. Did the writing in the lower righthand corner have any of the same pictorial aspects of the handwriting of George De Mohrenschildt?

Mr. McNALLY. It does not.

Ms. BRADY. Directing your attention to the writing appearing on the top portion of the photograph, did you also examine that writing?

Mr. McNALLY. I did.

Ms. BRADY. Do you know what language it is written in?

Mr. McNALLY. Russian.

Ms. BRADY. Are you able to read and translate Russian?

Mr. McNALLY. I am not.

Ms. BRADY. Mr. Chairman, Marina Oswald Porter has previously testified that the Russian writing translates to read, "hunter of Fascists, ha, ha, ha." Additionally, at this time I would like to enter into the record an affidavit by Tadeusz Sadowski of the European Law Division of the Library of Congress, who is a specialist in the Russian language. Mr. Sadowski also affirms that he has examined the original on the photograph and that has also translated the Russian writing as "Hunter of Fascists, ha, ha, ha."

Mr. McNALLY, were you able to form an expert opinion about this Russian writing even though you cannot read or translate Russian?

Mr. McNALLY. To a certain extent I was, yes.

Ms. BRADY. Were you able to compare the Russian writing with the handwriting of Lee Harvey Oswald?

Mr. McNALLY. I compared the Russian writing the Cyrillic sections of the alphabet here and there are also some Latin alphabet forms there with the writing of Lee Harvey Oswald. I found that the writings which are comparable, there are certain sections here which in a Latin alphabet would be translated as an "m". That is in the upper section of this particular writing at the top, and the letter in the latin alphabet would be "a" and that appears about seven times. Also, the letter "x", of course, which means something else in the Cyrillic alphabet.

Those particular letter design forms as compared with their counterparts in the Cyrillic alphabet as done by Mr. Oswald do not conform. They are entirely different.

I also examined and compared these particular forms with the writing of Marina Oswald. I found in that particular case also that the particular design forms which are here as compared with Marina Oswald's writings are completely different. They matched neither Marina or Lee Oswald's writings.

Ms. BRADY. Did you examine samples of Marina Oswald Porter's writing in Russian?

Mr. McNALLY. I did.

Ms. BRADY. Were you able to note any other characteristics of the Russian writing? Does it appear to be any type of tracing?

Mr. McNALLY. In this particular case here: those three lines of Russian writing are in pencil. Actually, they are in pencil which is written over pencil; which is either faded away or written lightly or had been obliterated. Pencil on a surface of this particular nature was written with a soft pencil; just by handling alone it may disappear.

What has occurred here, in my opinion, is that somebody who was apparently not conversant with the Cyrillic alphabet has reconstructed what was written on here previously. In reconstructing it, we get all of these particular forms which actually, I assume from Mr. Fithian's comment this morning; it is Russian as written by somebody who is not particularly conversant or is below a grammar school level. That would account for the fact here; a reconstruction by somebody of the writing which had originally

been on here by somebody not conversant with the Russian language or Cyrillic alphabet would turn out something like this which can be translated, but at the same time looks a little peculiar.

The writing which we have here looks to be a tracing; looks to be copied. It is written very slowly. There is a very hesitant line quality in it and it is very uncertain. The party doing this was trying to make sure what he was doing, so the whole thing has been written very, very, slowly.

Ms. BRADY. Does enough of the original writing remain for you to be able to make any type of analysis of it?

Mr. McNALLY. In the process of actually trying to cover somebody else's writing, it has been effectively disguised. In writing over somebody else's writing, it has effectively obliterated the original writing that was there and makes this whole particular section unidentifiable.

Ms. BRADY. Thank you Mr. Chairman, I have no further questions at this time.

Chairman STOKES. The reporter will suspend for a moment to record a change. Does counsel have something further?

Ms. BRADY. Yes, I would ask that the affidavit of Tadeusz Sadowski be designated JFK exhibit F-312 and be entered into the record.

Chairman STOKES. Without objection it will be entered into the record at this point.

[The information follows:]

District of Columbia: ss

AFFIDAVIT

I, Tadeusz Sadowski, do hereby affirm the following:

1. I am employed as a Senior Legal Specialist of the European Law Division of the Law Library of the Library of Congress.
2. I am employed as a specialist in the Russian language.
3. On September 7, 1978 I was shown a photograph which has been designated as JFK Exhibit F-183, by Surell Brady, Staff Counsel for the House Select Committee on Assassinations.
4. I read and translated the Russian writing which appears on the rear of the photograph as follows: "Hunter of fascists ha-ha-ha!!!"

Signed: Tadeusz Sadowski

Subscribed and sworn to before me on this 12th day of September, 1978.

Annette B. Young
Notary Public

My Commission expires: August 31, 1981

JFK EXHIBIT F-312

Chairman STOKES. The Chair will now recognize the gentleman from Indiana, Mr. Fithian, for such time as he may consume, after which we will then go to the 5-minute rule.

Mr. FITHIAN. Mr. Chairman, this sounds like an unusual request, but may I move down there with the exhibit and the witness?

Chairman STOKES. Certainly, as you so desire.

Mr. FITHIAN. First, Mr. McNally, I would like to ask you to reaffirm what your conclusion is with regard to only these three words. I am raising no question about your analysis on all the rest of it.

Mr. McNALLY. I examined and compared those letters in the three words at the top of the document with the Russian Cyrillic writing as done by Lee Harvey Oswald and also with the series of writings done by Marina Oswald. I was unable to make any identification.

As a matter of fact, the writings as they exist right on that particular document now are quite different from the writings as done by both Lee Harvey Oswald and Marina Oswald.

Mr. FITHIAN. So your conclusion is that these may not in fact be the writings of either Lee or Marina?

Mr. McNALLY. What we are seeing there are definitely not done by them.

Mr. FITHIAN. It was definitely not done by them?

Mr. McNALLY. The writing which is visible now was definitely not done by them.

Mr. FITHIAN. Let me just ask you whether or not it is your judgment that the same person wrote all three words plus the "ha, ha, ha?"

Mr. McNALLY. I believe so.

Mr. FITHIAN. Mr. Chairman, I tread on pretty thin ice because I am a long way from a handwriting expert, but would you look at it just from my point of view for a couple of minutes and look very carefully at the first word, "o-k-h-o-t-n-i-k," printed almost painfully and with a great deal of uncertainty, particularly the Russian "e" in here almost sort of squeezed in.

That is an unusual way of putting that particular letter in place, to say nothing of the breaks in the Russian "ta" or "t" here, the three parts. Normally it is written just like an "m" with a bar across it.

Now just disregarding the other sections and just looking at that, both in terms of the painful way in which it is drafted and on varying levels of height in the row, or if there were a line underneath it, clearly it seems almost not like a child but it seems much worse than the other words.

Now compare this word with *faschistame*, in the third word, which looks to me like leaving out the "za" that it flows much more readily. It looks like somebody wrote that word who knew at least which Russian letter was supposed to come up.

Am I seeing it altogether wrong?

Mr. McNALLY. Actually, you are looking at it from a different perspective. My own particular feeling about this, not only a feeling but this actually has occurred is that we have faint traces of writing which are on this particular paper. The probability is that the writing which was on there originally in Russian either was erased or it was written there very lightly, or because of handling actually practically disappeared.

In my opinion, somebody at a later date came along and in order to make it legible, went over the writing or the pieces and bits of writing which still remained on there and they turned out this particular product.

My own feeling is that in the areas, for instance, in that letter, the fourth letter on the top line there which approximates an "m", is that I think there that the party was not sure of what that particular formation was. It is somebody not conversant in Russian who turned out that particular letter design which in essence is not an "m" and it is not either the equivalent in the Cyrillic alphabet. The other writings I think were done in somewhat the same fashion. The reason for more continuity and more fluency in the second line may be occasioned by the fact that maybe there was

more of the original writing there and they saw the letter formations a little bit clearer.

In the third line, of course, it is at the end at least much clearer because on the original document anyway, you can see the vertical lines that make up the exclamation points just to the right of each one of the exclamation points.

I think actually the reasons for the change in tone, as it were, of the writing from the first to second to third line is occasioned by the fact that I believe there was more legibility of what writing that was left on the second and also on the third line.

Mr. FITHIAN. Is it your opinion that the word *faschistame* was also written in pencil prior to the overwriting using the same letter construction?

Mr. McNALLY. The letter constructions I am unsure of because there is only fugitive traces of pencil writing there because in some places you only get an indication to the right or to the left of these words.

Mr. FITHIAN. Let me talk about one letter in there which I think you can see behind.

First of all, I was struck by the fact that the same person writing two words in Cyrillic would use two different kinds of "t's" in the interior of the word. This one which is a kind of a broken version of an old style Russian "t" and this one, which is a more modern version, though written a little peculiarly but clearly the two "t's" are not the same.

Will you agree with that?

Mr. McNALLY. I agree with that; yes.

Mr. FITHIAN. Now look just behind the "t" in *faschistame*. Do you have the original there?

Mr. McNALLY. I have it.

Mr. FITHIAN. Are my eyes playing tricks on me or does it look like an English "l"?

Mr. McNALLY. Just slightly to the left of it, it does look like a loop formation like the letter "l."

Mr. FITHIAN. I have some problems with your conclusion because if in fact this word is written by the same person as that word, not only do you have two different "t" constructions which is really quite unusual in my judgment, but in addition to that, when the person got to that part of the word *faschistame*, they chose not to follow the pattern that is underneath.

I think it is a little unusual, but I don't really want to push that that a person makes the Russian "t" by the modern method with a large loop like the English "l." That is not what set me off so much as the fact that the overlay is entirely differently formed in three ways:

One, the underlay "l" or we could say "l" for this point looks to me very much like it is hooked onto whatever preceded it which would have been under the Russian "s" which is the English letter "c" is the Russian "s."

If you look very closely at the underlay, it looks like someone would have been writing the word whatever it is and then just flown onto the "l" in a cursive style, moving from one letter to the other.

Here there is no question about it. There is a clear break between the Russian "sh" which is a kind of inverted "m" with a bar under it translated as a "sch" sound in the English, and the Russian "s" which follows and the Russian "t" which follows. All three of those are clearly separated from one another. There is no cursiveness about them. That is why I had problems about them with Mrs. Porter who could not tell whether it was her writing or not.

I think it is clear it is not her writing, I don't think there is any question I am in total agreement with you. That is not her writing, nor is it the writing of anybody who has written much Russian by hand and large. Certainly, this first word, but—

To go back to this underlay "l," I find it very difficult to arrive at the same conclusion that you do that this was simply a printing over the letters that were already there. This leads me to kind of an open-ended speculation. You know, one could theorize all sorts of things. One could theorize that someone wrote—just try this one on for size—someone wrote the word "okhotnick" which is fine because that translates as hunter and if you had a guy in the garb that Oswald is in on the opposite side of this, he might have printed on the word "hunter." If in fact the word *faschistame* and the *ha, ha, ha*, were written by someone else, which I think is possible and I might argue even probable, we might take away from this a wholly different historical interpretation as to how this particular inscription came about. That was not even a question, I guess.

Mr. McNALLY. No.

Mr. FITHIAN. Do you have any explanation from your expert position on this as to why the open "l" appearing to be hooked on to the letter which precedes it, and I might stretch my eyes and say it seems also to be hooked onto the letter which follows but I am on shakier ground there?

Mr. McNALLY. When I looked at this, I had no idea actually as to what the translation was. I looked at it from the standpoint that we had a series of letter designs here which were in the Cyrillic alphabet which I am not that familiar with. But the writing pattern of these particular things is written in a very slow, hesitating fashion as if the party involved in this particular process here was uncertain as to the formations, it seems to me, of the various letters that he was writing.

I think from the evidences of the pencil writing which still remained there, from what I can see of them, that that individual was, in effect, following some letter design forms which he had seen there previously. That would account for some of the variations we have there.

The incidence of that particular form appearing in between the "s" or the "c," what would appear to be a Latin alphabet "c" and a Latin alphabet "t"; I cannot explain that particular formation, but I really don't see any great deviation or change in that writing. It seems to have to me the same flow and the same continuity from the top to the bottom.

Mr. FITHIAN. It doesn't seem to you that this was written somewhat faster than the first word?

Mr. McNALLY. In the sections there which actually are sort of the double "u" formation there and the "c" and the "t"; yes, those sections there do seem to be written appreciably faster. The beginning of it seems to me to be a little uncertain starting off, and then it has speeded up. It could be—and, of course, I am theorizing, I am not too sure of actually what is under there—it could be created by the fact that there was more there to follow than there was in the original when they started off.

Mr. FITHIAN. Is it your opinion that both words are sort of overtraces or overwritten?

Mr. McNALLY. They are overwritten over original pencil writing, most of it gone.

Mr. FITHIAN. Do you have any theory as to why the same person either writing in pencil to start with or writing the overlay would use an internal "t" in an altogether different style letter?

Mr. McNALLY. I have not the faintest idea, but people do strange things. Fortunately, I only have to identify handwriting. I don't have to look into the psyche of the individual involved. But I have found in my experience that trying to rationalize what an individual does in one particular letter and another particular letter, it is the same as writing a signature. You write it one way the one day and the next day there is a twist thrown into it. The rationale behind it is hard to fathom. It is people with individual quirks.

Mr. FITHIAN. I guess my problem was that this was more than just a little shift in the way you pointed your pen or pencil. It was an altogether different writing of the Russian "t" which I am told could stem from being trained at altogether different times in the Soviet system of schooling.

But put that aside. I find it very difficult to understand why we would get two very different "t's" used. I didn't catch everything you said. Had you analyzed Lee Harvey Oswald's Russian script in some other writing?

Mr. McNALLY. Yes.

Mr. FITHIAN. Did you find these characteristics in them? Did you find places where he wrote internal "t" in other words?

Mr. McNALLY. No, I found that actually he writes unlike that formation which appears to be an "m," sort of split apart on that particular document. He writes that as you would write the English "m." That formation at the end of the top there, he writes that in entirely different form. His "x's" are different and the "a" which in this particular instance is a "c" and there is a gap and you have that little curve. He writes it as you write an English "a."

Mr. FITHIAN. Did you find any other English style "t's" in his writing?

Mr. McNALLY. I didn't find anything in his writing. There are one or two situations where you run into some similarities, but there are more differences than similarities between the writing of Marina Oswald and Lee Harvey Oswald as opposed to this particular writing.

I am of the opinion that the writing to me seems to be done by somebody who is not conversant in Russian and I think were following the forms they saw on that page. That occasions the deviations from the original Cyrillic alphabet.

Mr. FITHIAN. Did you find it strange that the formation of the "a" in the three last words, that the two, this one and this one, seem to match each other and the internal "a" doesn't seem to match either one of them? That is, the body of the "a" is made by almost square lines as you follow it around with kind of sharp corners at three or four different places and the tail of the "a" is very clearly almost like a shortened English "l," whereas in the second "a" it is much more like we might write it in English.

Were you troubled at all by the inconsistency of the "a's"?

Mr. McNALLY. No; you have three, four, five, or six which precede it. There is a lot of variation among them. Essentially they are all written in the same manner, written as a "c" with a curved loop after it, but at the end of each one of these "a's" there is a slight variation, one from the other.

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from the District of Columbia, Mr. Fauntroy.

Mr. FAUNTROY. Thank you, Mr. Chairman.

I simply have two questions. The first has to do with your earlier statement that some of the writings that you examined were photocopies and some were originals?

Mr. McNALLY. That is right.

Mr. FAUNTROY. Are photocopies as good as original handwriting for analysis purposes?

Mr. McNALLY. No, never.

Mr. FAUNTROY. I wonder if you would care to tell us which analyses were made of originals and which were made of photocopies?

Mr. McNALLY. On the photocopies, none of these actually are photocopies that we are talking about here. Among the various documents there are a number of photo reproductions.

Mr. FAUNTROY. But you examined the originals of those documents?

Mr. McNALLY. All of these documents which I have talked about at this particular juncture are all original documents.

Mr. FAUNTROY. Second, is it your testimony that the Russian script on the back of the photograph is neither that of Lee Harvey Oswald, Marina Oswald, nor Mr. De Mohrenschildt?

Mr. McNALLY. I don't know about Mr. De Mohrenschildt. I have seen none of his Cyrillic writing. All I saw of his writing was written in the Latin alphabet.

Mr. FAUNTROY. I see, is it your testimony that the "G. de M." at the bottom is not in his——

Mr. McNALLY. No; it does not correspond to his writing. He writes very spidery, with quite a bit of shakiness in his handwriting, and in an angular fashion. This is more rounded. That particular "G" that we see up there I saw quite a bit of his writing and I couldn't find it anywhere in it. Each time he writes his name, I have seen a couple of his signatures and he has never written a "G" in that particular fashion. This is much more firm than his writing.

Mr. FAUNTROY. And "copyright" by the same token?

Mr. McNALLY. Yes. I looked at it overall. Not only the "G. de M." but also the word "copyright." The "copyright" is also more

rounded. I can't find a "p" that is written in that particular fashion or an "r" or an "h" written in that fashion in all of his writing. He writes an "h" instead of as you see it there where it looks like an inverted "u." When Mr. De Mohrenschildt writes, he turns it around the other way. It looks like a regular "y." In other words, out of context. When he writes an "h," it looks like an "li."

Mr. FAUNTROY. The script in the lower lefthand corner, were you able to identify that?

Mr. McNALLY. Yes. In my opinion that was written by Lee Harvey Oswald.

Mr. FAUNTROY. Finally, if we were to secure a copy of handwriting by Mr. De Mohrenschildt in Russian, do you think you would then be able to tell us whether or not the Russian there is in his handwriting?

Mr. McNALLY. It might give us some indication because there are some peculiar forms in there. The way the "a" is written is rather peculiar. I don't see that particular "a" in the writing of Marina Oswald. I imagine she writes in a regular Russian script. It is an odd kind of "a." Again, it looks like it has been constructed over some other writing. That is why it turned out in that form.

If that has happened, then it may get to a point you would never be able to identify who wrote this because it's a combination of say, No. 1 writing with No. 2 writing put on top of it, in order to make it more legible.

Mr. FAUNTROY. The fact is, however, that having looked at Mr. De Mohrenschildt's writing in English, you are not able to identify his English "a" with the Russian "a."

Mr. McNALLY. Well, his English "a" form is entirely different from the "a" form that we have up there which is an approximation of the Latin alphabet. Also, that other form there looks something like a "k" on the first line just before the three "a." At that particular form up there it is made up of three separate lines, a vertical and two diagonals. One is separated from the other in the writing of De Mohrenschildt and the other people I mentioned, none of them make a "k" in that fashion or make a design form in that fashion or make that design form in that fashion.

Mr. FAUNTROY. Thank you, Mr. Chairman. I yield back the balance of my time.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman.

Do you see any similarity between the Russian writing at the top and the copyright and so on down at the bottom?

Mr. McNALLY. No. The copyright is written much more firmly, dashed right off. The other one, it looks like they labored to write that Russian writing.

Mr. SAWYER. Not being an expert, as I look at the "c" up in the Russian writing which is actually an "s" in Russian but looks like our "c," it bore just to my eye quite a resemblance to the way the "c" was written in "copyright."

Mr. McNALLY. You will always pick up one or two letters. Something like, one swallow does not make a summer.

Mr. SAWYER. Was your panel unanimous in agreeing on the writing that you say was written by Lee Harvey Oswald?

Mr. McNALLY. Yes.

Mr. SAWYER. There was no difference of opinion on that?

Mr. McNALLY. No; we practically agreed on everything.

Mr. SAWYER. Thank you.

That is all I had, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Just one question: From what I have gathered you have said here for the past 20 minutes or so that you have identified the writing on the left as that of being Lee Harvey Oswald.

Mr. McNALLY. Right.

Mr. DODD. You have identified negatively the writing at the top in Russian as not being of either Marina or Lee Harvey Oswald?

Mr. McNALLY. That is right.

Mr. DODD. And you are unable to identify the writing on the bottom of being of anyone?

Mr. McNALLY. That is right.

Mr. DODD. And you don't see any similarities between the Russian writing, the copyright writing, or the writing of Lee Harvey Oswald?

Mr. McNALLY. I do not.

Mr. DODD. So it would appear to you, can we conclude, that there are possibly three people or more who could have written on the back of this picture?

Mr. McNALLY. There are three different handwriting patterns on there.

Mr. DODD. It is definitely three different handwriting patterns?

Mr. McNALLY. That is right.

Mr. DODD. Did you see any dissimilarities in the Russian writing? It appeared to you it was all done by the same person?

Mr. McNALLY. I believe so; yes.

Mr. DODD. Did the panel address that issue as to whether or not there could have possibly been more than one person writing the Russian?

Mr. McNALLY. No; I do not think so.

Mr. DODD. As for the "copyright" and the "G. de M.," that was all done by the same person?

Mr. McNALLY. That particular one in the lower right hand corner. Yes, all by the same individual.

Mr. DODD. And it is all the writing of Lee Harvey Oswald? You didn't detect anything in there that would indicate——

Mr. McNALLY. The lower left is the same individual.

Mr. DODD. So it is three distinct?

Mr. McNALLY. Three distinct writing patterns there; yes.

Mr. DODD. Thank you.

Chairman STOKES. The time of the gentleman has expired.

The gentleman from Tennessee, Mr. Ford.

Mr. FORD. Thank you, Mr. Chairman.

Mr. McNALLY, when you describe the techniques which were used to examine the writing, were there any blowups with the Oswald writing and his wife, Marina, compared to the writing on the back of the picture?

Mr. McNALLY. Blowups in what way? During the examination process?

Mr. FORD. During the examination process?

Mr. McNALLY. Yes. As a matter of fact, for most of this examination, I had taken photo macrographs of these and I studied projections of them on a screen. This particular writing was made actually much larger than it is now versus other signatures of his.

Mr. FORD. No further questions, Mr. Chairman.

Chairman STOKES. The time of the gentleman has expired. The gentleman from Pennsylvania.

Mr. EDGAR. Mr. Chairman, I have no questions.

Mr. FITHIAN. May I have 1 more minute?

Chairman STOKES. Surely.

Mr. FITHIAN. Mr. McNally, would it be fair to surmise that since George De Mohrenschildt was educated either in Poland or Russia and therefore would have from boyhood written in that alphabet, that it would be at least highly unlikely that George DeMohrenschildt wrote any of those Russian words on the back of that?

Mr. McNALLY. I think if he knew Russian, he would have just rewritten it, period. I get right back to where I started. I think this was written by somebody not very well conversant with the Cyrillic alphabet and that is why they had such problems in writing these letter designs. Somebody like Mr. De Mohrenschildt I think would have turned out a product which would be much more Russian, so to speak.

Mr. FITHIAN. We have had testimony that Mr. De Mohrenschildt was fluent in Russian and his earlier education pattern would have been with that alphabet. So I just wanted to get that into the record that at least it would be my guess that De Mohrenschildt could not have written that or would not have written that.

Mr. McNALLY. I don't believe somebody conversant with the Cyrillic alphabet would have turned out a product like this.

Mr. FITHIAN. So it is your conclusion that it was a beginning or somebody not very familiar with it?

Mr. McNALLY. That is right.

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES. Mr. McNally, my understanding is that you will be called back later in our hearings for further testimony in another section.

Since you have concluded this section of your testimony, would you like to have 5 minutes to explain your testimony or make any comment with reference to your testimony? I would extend to you 5 minutes at this time for that purpose.

Mr. McNALLY. Well, I don't think it will take 5 minutes.

Actually, to recapitulate, in my opinion the writing in the lower lefthand corner of that particular photograph was done by Lee Harvey Oswald. The Russian writing at the top is an overwriting of pencil writing which had either been erased or faded away or had been written lightly to begin with. I was unable to identify that writing as being done by Lee Harvey Oswald, Marina Oswald, or Mr. De Mohrenschildt. The writing in the lower righthand corner cannot be identified with the writing of Mr. De Mohrenschildt.

In sum and substance, this is my testimony.

Chairman STOKES. Thank you very much. At this time you are excused.

There being no further business to come before this committee, the Chair will adjourn this meeting.

[Whereupon, at 4:45 p.m. the committee recessed, to reconvene at 9 a.m., Friday, September 15, 1978.]

INVESTIGATION OF THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

FRIDAY, SEPTEMBER 15, 1978

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON ASSASSINATIONS,
Washington, D.C.

The select committee met, pursuant to adjournment, at 9:10 a.m., in room 345, Cannon House Office Building, Hon. Louis Stokes (chairman of the select committee) presiding.

Present: Representatives Stokes, Devine, Preyer, Fauntroy, Sawyer, Dodd, Fithian, and Edgar.

Staff present: G. Robert Blakey, chief counsel and staff director; Gary Cornwell, deputy chief counsel; Michael Goldsmith, staff counsel; and Elizabeth L. Berning, chief clerk.

Chairman STOKES. A quorum being present, the committee will come to order.

The Chair requests that Mr. Kirk and Mr. McCamy return to the witness table.

Gentlemen, the Chair would remind both of you that you are still under the oath administered to you yesterday.

You understand that, do you not?

TESTIMONY OF CALVIN S. McCAMY AND SGT. CECIL W. KIRK (Resumed)

Mr. McCAMY. Yes.

Sergeant KIRK. Yes.

Chairman STOKES. The Chair recognizes Mr. Goldsmith.

Mr. GOLDSMITH. Thank you, Mr. Chairman.

Mr. McCamy, after the panel had established that the Oswald backyard pictures had been taken with Oswald's Imperial reflex camera, what was the next step in the investigation?

Mr. McCAMY. We next addressed the issue of whether or not these were fake photographs.

Mr. GOLDSMITH. Were you familiar with the allegations that have been raised in support of the argument that the backyard pictures showing Oswald with the rifle are fake?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. Were these allegations considered by the committee's photography panel?

Mr. McCAMY. Yes, they were.

Mr. GOLDSMITH. Mr. McCamy, would you define the term "photo-aminetry"?

Mr. McCAMY. Photogrammetry is the science of ascertaining the positions and dimensions of objects from measurements of photo-

graphs of those objects. It is widely used in making aerial surveys. It is used in mapmaking. It is even used by orthodontists to study the positions of teeth, and that sort of thing. So it is a fairly well established science.

Mr. GOLDSMITH. What qualifications do you have in this science?

Mr. McCAMY. Well, I am the chairman of the standards committee of the American Society of Photogrammetry.

Mr. GOLDSMITH. Would you explain generally how photogrammetry was applied to the backyard pictures?

Mr. McCAMY. Yes.

Measurements were made of the photographs, in particular, the shadows in the photographs were very carefully analyzed by well-known techniques in photogrammetry, and in fact our measurements led us to the conclusion that we had stereo pairs and we were able to view the photographs stereoscopically.

Mr. GOLDSMITH. We will get into the concept of stereoscopy later.

At this time I would ask that the witness be given an opportunity to examine JFK Exhibit F-270.

Mr. McCAMY, how did the panel address the allegations that there are unnatural lines which are evidence of fakery in the vicinity of Oswald's chin?

Mr. McCAMY. We very carefully examined the original negative and the first-generation prints of the negative. We compared the photograph of Oswald with other known photographs of him. To assist in our evaluation of the photographs, we had exposure series made to assure us that we would be able to see all parts of the pictures, and we used digital data processing on the photographs.

Mr. GOLDSMITH. I believe you indicated that the photographs in the negative were visually inspected.

What did that include?

Mr. McCAMY. Direct visual examination and examination under magnification with magnifiers and microscopes. We examined the negative with a phase contrast microscope, which would detect very, very small changes in thickness in the negative.

Mr. GOLDSMITH. At this time I would ask that the witness be given a chance to examine what has been marked for identification as JFK F-196.

And, Mr. McCAMY, I would ask that you step to the easel and take a look at that exhibit.

Would you identify that exhibit for the record, Mr. McCAMY?

Mr. McCAMY. Yes; we have a copy of 133-A and this is the 133-A Stovall. Here we have the 133-A DeMohrenschildt photograph. And here we have enlargements of these photographs.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of this exhibit.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-196

Mr. GOLDSMITH. Mr. McCamy, referring to these exhibits, would you explain the results of the panel's visual inspection of the chin area in these photographs?

Mr. McCAMY. Yes; there had been an allegation that on a photograph of Oswald, there was a line directly across the chin, and this has been cited as evidence that the upper part of the head had been added onto another chin. So we looked very carefully at all of the original materials to see if there were any telltale line across there. What we found was that on second and third and more generation prints, or prints that were published in books, there was a tendency to build up more and more contrast here so that this looks more and more like a line. That line is nowhere near as pronounced on the original materials.

Having examined it to that extent, it was called to our attention that it was not this gross line that was of interest to some of the critics but rather it was pointed out that there was a very fine line that begins here and curves around and comes into here. This was pointed out to us, so we began a very careful examination of that, and there is indeed a very fine line that comes from the ear, comes down here, and over into here.

Now that fine line is actually too fine to be a photographic image. The photographic image is made up of silver grains, and these grains are distributed all through here, so we have a good idea of their size and distribution. This line is a line that is much finer than the silver grains themselves. It is much too continuous to be a photographic line. A line that had been photographed from some kind of montage would have had the grain pattern of a

discontinuous line, but this line is quite continuous. Indeed we can follow this line down up to here and then back around to here. It is a closed loop.

That very fine line is in fact the edge of the water spot. When the film was processed, a drop of water remained there. When the water dried, it deposited a very fine line of minerals, and that is apparent on the picture. I have seen exactly these same water spots on the area of his shirt and on the butt of the rifle, so we know that these water spots exist all over.

Now this is Stovall and DeMohrenschildt 133-A.

You will recall we do not have the negative of that so we could not examine that negative. We did see water spots on 133-B, but we do see that this same spot occurs on both of these first-generation prints of the A negative, so we know that the spot must have been on the negative.

Mr. GOLDSMITH. Mr. McCamy, were all of the Oswald backyard pictures, by that I mean A, B, and C, examined to see if there were any unnatural lines in the vicinity of the chin?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. And what was the panel's final conclusion there?

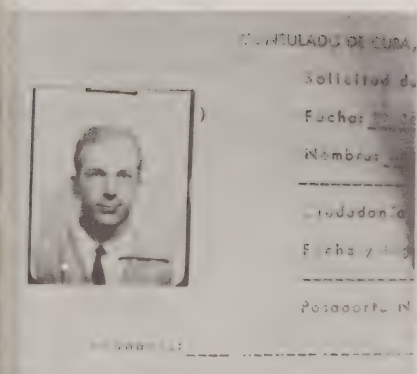
Mr. McCAMY. We found no unusual lines or edges, and these were very carefully sought.

Mr. GOLDSMITH. At this time I would ask that Mr. McCamy be given an opportunity to examine JFK F-194.

Mr. Chairman, I move to admit this item.

Chairman STOKES. Without objection, it may be entered at this time.

[The information follows:]



JFK EXHIBIT F-194

Mr. GOLDSMITH. Thank you.

Mr. McCamy, what additional information about the backyard pictures was obtained by comparing the backyard pictures with the photographs in this exhibit?

Mr. McCAMY. This photograph is quite remarkable. This was taken by the Dallas police. It shows that it isn't the picture that has a line across the chin. It is the man that has a line across the chin. He actually has an indentation right here, and that does show up in these photographs, right in the center and right here. There is a crease there, so that is a natural thing we find, but I think that it is also important to note here the exact shape of his chin. It is quite flat across here, and rounds down in this way. So that if that chin were illuminated from directly above, the light would fall down to here, to about that point, where it would seem to cut off quite straight. So this photograph gives us a good reason why that chin seems to be so flat at the bottom.

Mr. GOLDSMITH. Mr. McCamy, you made reference earlier to studying these photographs by applying a technique which you referred to as varying exposures.

Mr. McCAMY. Yes.

Mr. GOLDSMITH. Would you define that technique, please?

Mr. McCAMY. Yes. It is often difficult on a single print to see all the detail in a photograph. Sometimes not all the detail that is in the negative is printed in the photograph. To assure that we had all of the detail available to us for study, we had the Rochester Institute of Technology make a series of prints in which the exposure was increased from one print to the next, and this allowed us to see all the detail.

Mr. GOLDSMITH. I would ask that the witness now be given JFK F-192 and F-193 to examine.

Mr. McCamy, are these copies of the varying exposure prints prepared by RIT?

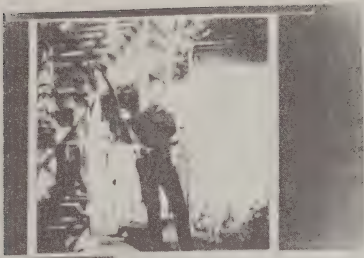
Mr. McCAMY. Yes.

Mr. GOLDSMITH. Mr. Chairman, I move for the admission of these items into the record.

Chairman STOKES. Without objection, they may be entered into the record.

[The information follows:]





Mr. GOLDSMITH. Please explain the results of this varying exposure analysis.

Mr. McCAMY. Yes. In these illustrations, the greatest exposure gives the darkest print, and the least exposure, the lightest print. The advantage of doing this is that in the lightest areas of the picture we can see detail here that cannot be seen up here. Conversely, in the shadows, this is the best photograph on which to look for the detail. So that is a print ideally exposed to look into the shadows. This one is ideally exposed to look into the highlights, so we can see all the detail there.

Mr. GOLDSMITH. After applying this method, did the panel discern anything unusual about these pictures?

Mr. McCAMY. No, nothing at all. There had been allegations that the shadows were painted in, and a simple examination of the shadows on these pictures shows that there is plenty of detail here. You can see grass, little stones. There is a newspaper lying back here. You can see the detail on it.

Mr. GOLDSMITH. You also referred earlier to a technique called "digital image processing."

Mr. McCAMY. Yes.

Mr. GOLDSMITH. Would you please define that technique?

Mr. McCAMY. Digital image processing is computer-assisted photographic evaluation. The negative or transparency or print is put into a scanner. A scanner is a device that optically looks at each very small area on the photograph and determines the lightness of it. It assigns a number to the lightness, and these numbers are then fed into a computer, into the memory. If you like afterwards, you can have that memory played back into a printing device that will reprint the photograph.

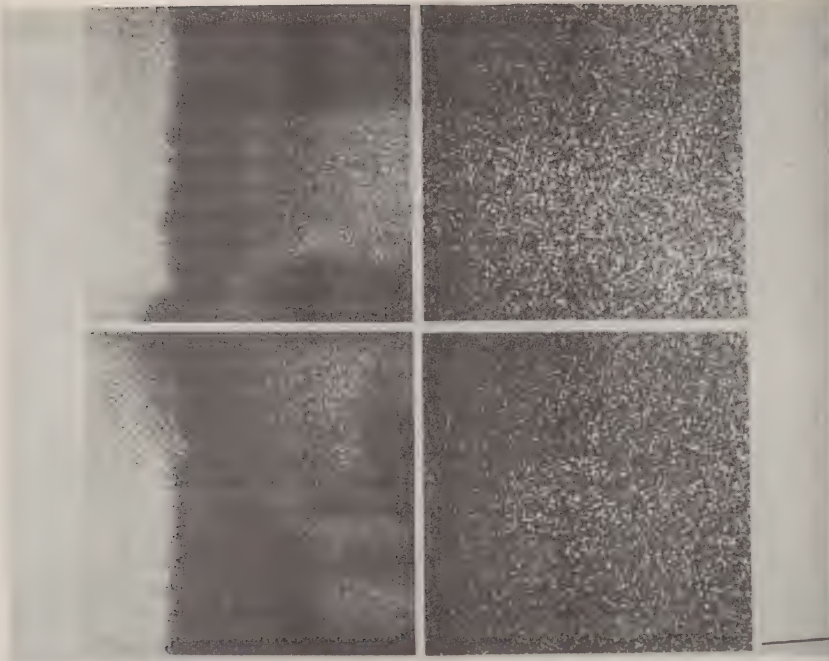
Sometimes we find it advantageous to utilize the capability of the computer while the information is in the computer to make a print that is different from the one that we put in.

For example, we can ask the computer to increase the contrast, decrease it, or increase or decrease the lightness. We can indeed ask the computer to look for edges or look for lines. We can make an analysis of the nature of the grain pattern, and then the computer can print out its results.

Mr. GOLDSMITH. At this time I would ask that Mr. McCamy be shown JFK F-197 and F-198 and that they be entered into the record.

Chairman STOKES. Without objection, so ordered.

[The information follows:]



JFK EXHIBIT F-197



JFK EXHIBIT F-198

Mr. McCAMY. We had this work done by the University of Southern California and at Aerospace Corp. They use these techniques in

processing the photographs that come back from satellites, et cetera.

Mr. GOLDSMITH. You have seen these two exhibits.

Would you explain the results of the digital image processing work done on these photographs?

Mr. McCAMY. Yes. One of the things that we wanted to do was to study the nature of the silver grain in the areas above the chin and below the chin, because of the allegation that these were two different photographs in some way. And so we did that. This is simply a printout from the computer showing the individual grains on the film above and below the middle of the chin. And we studied this. And as photographic scientists, we found nothing remarkable about the grain pattern. This was the same type of grain pattern. Over here we have a photograph. This is a direct printout from the computer. It just printed a straight photograph, but then we had asked the computer to look for edges, and to give us a printout of the edges. Here on the photograph you see there is an edge and at edge is shown here on this printout as a white line.

Likewise, edges here are traced out by the computer, and with this analysis, the computer was unable to see any spurious lines across the chin and not able to see any spurious lines leading into the chin from the outside.

There had been one contention that this area on this post was unnatural. Our inspection of this leads us to believe that the apparent indentation is simply a shadow, because if you look very carefully, you can see the post running down through that area, and this is just a slight darkening. So that was merely a shadow, and the computer confirms this.

As you can see, it finds that straight edge running right straight down there.

Mr. GOLDSMITH. Mr. McCamy, I notice that there is a line underneath, or running across Oswald's chin.

Are you able to explain that line?

Mr. McCAMY. The line over here is simply the natural shape of the chin being indicated by that high level illumination. The line here, of course, is the edge of that being traced by the computer.

Mr. GOLDSMITH. Which of the backyard picture materials were used or subjected to this technique of digital image processing?

Mr. McCAMY. We worked with the negative. It was the negative 133-B.

Mr. GOLDSMITH. Why weren't the prints from 133-A and 133-C subjected to this process?

Mr. McCAMY. Well, we needed the original negative, you see, to study the grain. So that is the reason we did that.

Mr. GOLDSMITH. How might evidence of fakery appear on a digital image processor printout if in fact there had been fakery?

Mr. McCAMY. Well, we should have expected to find a difference in grain, or over here, we should have expected to find edges that would have indicated some kind of montage.

Now we did not find any such evidence. That, of course, doesn't prove that it was not faked, but we are looking for evidence that it is faked, and we find none.

Mr. GOLDSMITH. At this time I would ask that Mr. McCamy be given a chance to see JFK F-386. I would also request that Mr.

McCamy be shown JFK F-270. And while that is being brought out, I move for the admission of F-386, Mr. Chairman.

Mr. Chairman, may we have F-386 entered into the record?

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



JFK EXHIBIT F-386

Mr. GOLDSMITH. Mr. McCamy, drawing your attention to JFK F-270, which is the exhibit on the far left, the allegation has been made that Oswald's chin is different in the backyard photograph from the chin on the real Oswald on the left of that photograph JFK F-270.

Referring now to JFK F-386, which is the exhibit at your immediate right, how did the panel address this particular issue?

Mr. McCAMY. The panel compared the backyard photograph with these other known photographs of Oswald. We find that in some of his younger pictures, his chin appears more rounded than it does later on when he develops a slight cleft in his chin. In all these though, we can see this rather distinctive line across the chin, and then we looked for the contour here. That would explain why the overhead illumination here would have simply cut off this point. It seemed to us quite natural that that image would result from high level illumination of that chin.

I should remark that a number of people have made measurements of photographs and thought that there was something unusual about them. Oftentimes people do not take into account the fact that when the jaw is clenched, you have one dimension from

the top of the head to the bottom of the chin, and when it is not stretched, you have a different length.

So I will demonstrate. It is not uncommon for people to have their mouth closed but the teeth down, so that can enter into looking at pictures like this.

Mr. GOLDSMITH. Did the panel find that Oswald's chin was the same in each of these pictures? By the "same," I mean did it appear to be, did it have the same appearance in each picture?

Mr. McCAMY. The backyard photographs seem to have nothing that is unusual as compared to the other chins.

Mr. GOLDSMITH. To what extent is lighting a factor in the way that a chin might appear in a photograph?

Mr. McCAMY. It is a very important factor. Every portrait photographer knows very well that the way the face is lighted can have a tremendous effect on the appearance.

The eyes, for example, hardly show up on the backyard photographs because of this overhead illumination. Of course, the nose shadow is produced by that, but the chin form is not delineated well on that picture at all because there is little or no light coming from the front.

Mr. GOLDSMITH. From examining these photographs did the panel conclude that, in some of the pictures, Oswald's chin appears to be pointed, and in others, it is flat or straight across at the bottom?

Mr. McCAMY. Only to the extent that in his younger years it was more rounded and didn't seem to show this cleft as much as it does later on.

Mr. GOLDSMITH. Mr. McCamy, how did the panel address the question of the shadows in the backyard pictures?

Mr. McCAMY. This was addressed by a vanishing point analysis.

Mr. GOLDSMITH. What do you mean by "vanishing point analysis"?

Mr. McCAMY. The sun is very distant, so far away that we can consider it to be at infinity, and as a result, if we draw a line from an object to the shadow of the object, and we do this in a number of places in a scene, all of those lines are parallel lines.

Now you may recall, if you have ever seen a photograph of railroad tracks disappearing into the distance, the photograph shows those two rails converging at a point. That is called the vanishing point. The rails are parallel but in the photograph they converge. This is taught in art courses in high school and in mechanical drawing, so the converging of parallel lines is a well-known matter of perspective. In a photograph one should expect that these parallel shadow lines should converge at the vanishing point.

Mr. GOLDSMITH. I would ask that Mr. McCamy be shown JFK 387 and F-388.

Mr. Chairman, I move for the admission of these exhibits.

Chairman STOKES. Without objection, they may be entered into the record at this point.

[The information follows:]



133-A



133-B

Mr. GOLDSMITH. Mr. McCamy, I ask you if you would explain how the vanishing point principle is illustrated in these two exhibits?

Mr. McCAMY. Yes. Here we have 133-A and 133-B. A line is drawn from a part of this stairway, past the shadow of the stairway, down to here. A line is drawn from the butt of the pistol, through the shadow of the butt of the pistol, down to here, from the arm to the shadow of the arm, down to here. And when we do this for all the points in the photograph, we find that they all meet at a point, as they should.

Now this is the line that passes through the nose and the chin down to here, and that one is the nose to the shadow of the nose. That is the one thing that has been disputed so frequently, and if you do the analysis properly, you see that the shadow lies right where it is supposed to lie.

The same thing is true over here. Here we have the muzzle of the rifle, the shadow of the muzzle of the rifle, and so on down the line.

Mr. GOLDSMITH. Mr. McCamy, if the lines were not parallel, would they all meet at one point as they do in these two exhibits?

Mr. McCAMY. No.

Mr. GOLDSMITH. If the lines in these two exhibits had not met at one point, what conclusion or inference might you have drawn?

Mr. McCAMY. We might have drawn the conclusion that something had been drawn in rather than traced in by the hand of nature.

Mr. GOLDSMITH. Did you do a similar vanishing point analysis for 133-C?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. And what were the results?

Mr. McCAMY. The results were the same.

Mr. GOLDSMITH. At this time I would ask that Mr. McCamy be shown JFK F-179.

Mr. McCamy, it has been specifically alleged that in the backyard pictures, the shadow cast by Oswald's nose does not change even though the position of his head changes.

How did the panel approach this analysis?

I understand the vanishing point analysis is part of that.

How was the issue overall approached?

Mr. McCAMY. Yes. The vanishing point analysis clearly proves that the shadows are correct, but we wanted to face the issue of whether or not we could convince someone else that these things can happen. So we asked the people at the Rochester Institute of Technology to make photographs that would illustrate just how it can happen that the head can be tilted and the shadow tilt with it.

Mr. GOLDSMITH. I would ask that Mr. McCamy be shown JFK F-271.

Are these the photographs prepared by the Rochester Institute of Technology?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. They are enlargements of those photographs?

Mr. McCAMY. They are enlargements.

Mr. GOLDSMITH. Mr. Chairman, I move for admission into the record of this exhibit.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



1. Head vertical.
Shadow points toward center
of mouth.



2. Head tilted.
Shadow points toward left side
of mouth.



3. Head tilted and rotated.
Shadow points toward center of
mouth, but head is not facing
camera.



4. Moving camera to left
restores full front view.
Shadow points toward center
of mouth with head tilted.

Mr. GOLDSMITH. Would you explain what purpose this exhibit was designed to achieve and also the results of your analysis?

Mr. McCAMY. It was designed to illustrate the way the shadow of the nose moves as the head is moved and as the camera angle is changed and so on.

Mr. GOLDSMITH. And what were the results of your analysis, sir?

Mr. McCAMY. Here we see the head vertical with the overhead lighting casting a shadow of the nose directly toward the center of the lips.

Here the head has been tilted by simply placing the pencil under this model. Once it is tilted, the sun casts the shadow slightly to the right.

Now if that head is then rotated ever so slightly to the left, the shadow now appears to be pointing right straight at the lips but the subject is no longer looking at the camera. An ever so slight shift of the camera now brings the image back to looking about, as it did at first.

Mr. GOLDSMITH. So you are saying then that the fact that the position of the head has moved will not necessarily mean that the shadow cast by part of the head, in this case the nose, will move?

Mr. McCAMY. Yes. The point is that the illumination, the exact geometry of the head and the camera position, must all be considered in trying to determine where the shadow ought to be.

Mr. GOLDSMITH. Mr. McCamy, in studying the shadows in these photographs, were you able to determine the time sequence in which the three pictures were taken?

Mr. McCAMY. Yes.

Mr. GOLDSMITH. How was that analysis done, sir, and what were your results?

Mr. McCAMY. Do we have 133-C?

Mr. GOLDSMITH. 133-C, please. I believe that is JFK-180.

Mr. McCAMY. Why not put it over on this side, please?

Mr. GOLDSMITH. How did you go about determining the time sequence in which these photographs were taken?

Mr. McCAMY. On this post, we see three shadows cast. These are also seen in the background behind the subject. Those three shadows appear on 133-A, 133-B, and 133-C, probably cast by some parallel lines, such as cables or some such thing.

If we look carefully, we see that there is a knot in the wood here. It is near the bottom shadow. Here we see that this bottom shadow is moved down considerably, so the knot is about half way between those two shadows.

Over here, the two shadows are moved down even farther, the knot is higher up, so we were able to find that the shadows were lower, down here. Then they moved up a little bit, and then they moved up a little bit more.

This indicated, you see, that the sun was moving down in this direction. And if these cables were at a considerable distance, this gives us quite an angle of throw. The indication is that this picture was taken first, then this one, and then this one.

Mr. GOLDSMITH. For the record, the witness has indicated that 133-C was taken first, then 133-B, and then 133-A, although it is possible, is it not, that there were intervening pictures?

Mr. McCAMY. Oh, there could well have been, but I considered only these.

Mr. GOLDSMITH. In examining these pictures, is there any indication that the photographer's work improved as each picture was taken?

Mr. McCAMY. Yes. We can see some learning here.

On this picture, the camera was tilted to one side, and when the photographer took the picture, a common error was committed, the camera was held in one hand and the other hand was used to depress the shutter release. When that was done, the camera was rotated ever so slightly. We find the area in the neighborhood of this bush to be quite clearly recorded, so that this was the center of rotation, and over here, we see a systematic movement, a camera motion of the stair treads in the upward direction.

Now in this photograph, the camera is held upright, but his feet have been cut off. We go over to this photograph, and the camera is now held upright. He is completely included. He is now smiling and ready to have his picture taken.

Mr. GOLDSMITH. Mr. McCamy, another allegation that has been made is that the heads in these photographs are identical, thereby, suggesting that one head has been used for three different composites.

How did the panel approach this issue?

Mr. McCAMY. The panel simply looked at these three pictures and found it quite puzzling that anyone would say that they are the same. He has a different look on his face on each of these pictures. Here he is rather smiling. More of his eyes were shown in this picture than in the others.

In this one, he is frowning. The lower part of his lip is puffed out.

And in this picture, he has a rather gentle smile on his face.

They are so different that it is just apparent from the photographs.

Mr. GOLDSMITH. Drawing your attention now to the argument that the backgrounds in each of these pictures are identical, how was this issue studied by the panel?

Mr. McCAMY. It was studied by visual inspection and measurement. Visually inspecting the photographs, we find that there are—I have already spoken of the shadows on the post. These are different, and they do what one would expect them to do. But back in here, one sees shadow detail that is different on these because these are shadows of leaves of a tree at some distance, and the slightest movement of those leaves, of course, causes a different shadow pattern back in here.

Inspecting the photographs, we can look at a little rectangle here, for example, and we see that it looks different on these pictures. It has different dimensions, so that immediately suggests measurement.

Mr. GOLDSMITH. What other measurements, if any, did you make of these backyard photographs?

Mr. McCAMY. The two things that we wanted to determine was whether there had been any movement of the camera to the left or right and whether there had been any movement of the camera up

or down that would indicate that the camera had moved slightly between these exposures.

There is a post in the foreground. There are pickets in the background. A sensitive method of detecting a horizontal movement is to measure from the left edge of the post to the edge of the picket on the left side, the right edge of the post to the edge of the picket on the right side, and take the ratio of those two. Do that on that photograph, then do it on this photograph. We did that.

We find that that ratio is different on these two photographs, indicating that there has been a small change in the camera position from one photograph to the next.

We apply exactly the same kind of principle in the vertical direction. Measurements were made from a part of the fence in the foreground to a part of a door in the background, and in each case, this was ratioed against another dimension here. So that mere scale wouldn't change these things. And again we find that there has been some vertical movement also, very small, but it is there.

Mr. GOLDSMITH. What is the significance of the fact that there was some movement, albeit small?

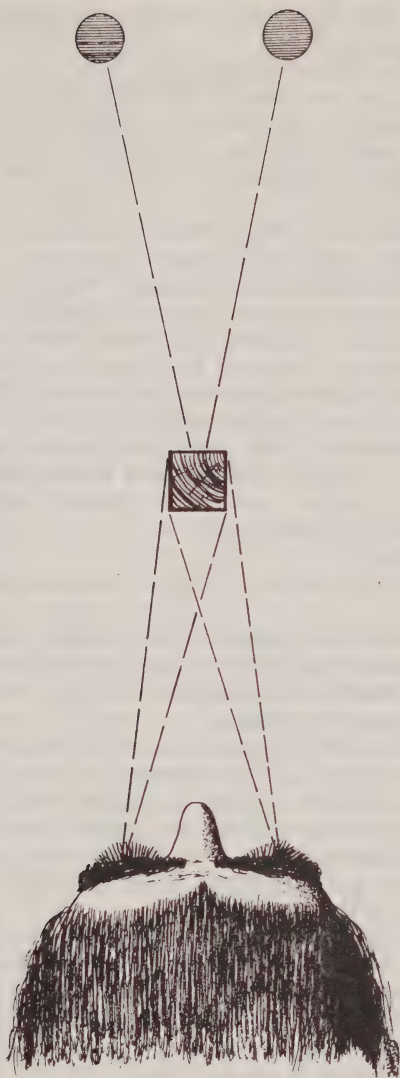
Mr. McCAMY. It had two kinds of significance to us. The first thing was that it showed that the camera had been moved and therefore was not on a tripod. It had the significance to us that the background was real, that is, it was not a photograph that had simply been rephotographed and rephotographed. But it also gave us stereo. We were able to view the pictures stereoscopically.

Mr. GOLDSMITH. I would ask that Mr. McCamy be shown F-203.

Mr. Chairman, I move for the admission of this exhibit.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]



JFK Exhibit F-203

Mr. GOLDSMITH. Mr. McCamy, would you describe the concept of stereo, using this exhibit?

Mr. McCAMY. Yes. The human eyes are located a short distance apart. If we view a square peg a little way from the eye, the right eye can see the front of the peg and a little of its right side. The left eye sees the front and the little bit of the left side. This is known as the binocular disparity, that is, we see different things with the two eyes.

Another thing that we note is that for the left eye view, this spot falls behind the peg, and for the right eye view, a different spot in the background will fall behind the peg. This is known as parallax. And now the photographer can record what the human eye sees, and it is done by simply placing a camera here and a camera here.

Now the two may be combined together in what is called a stereo camera, or one can make a photograph here and then move over to here and make another photograph, and then if these two photographs can be viewed with the two eyes, you will see the same kind of depth as would be seen if you were in the original scene.

Mr. GOLDSMITH. In other words, the stereo viewing enables someone to see in three dimensions.

Mr. McCAMY. Yes.

Mr. GOLDSMITH. How do stereo pairs assist someone in detecting possible fakery?

Mr. McCAMY. We were able to view these photographs stereoscopically, so we know that there was slight camera movement. We know that there were two pictures. But it has much more far-reaching consequence than that.

It tells us that there was a solid three dimensional field that was photographed two times. If one were to have photographed the background once, and then taken a camera and photographed that print and then rephotographed the print from two angles, when that is viewed stereoscopically, the human eye would tell you that you were looking at a plane print. That isn't what we saw. We saw depth, and we can still see depth.

Now if one were going to do art work on actual stereo pairs, that art work has to be done exceedingly meticulously, because the slightest difference in the art work on one photograph and the art work on the other photograph would cause the points involved to appear to be too far away or too close. They would tend to float in space. So stereo viewing is an excellent way of checking up on the authenticity of the photograph.

Mr. GOLDSMITH. Is any special viewer necessary to enable someone to see in stereo?

Mr. McCAMY. It is not necessary but it makes it more convenient for most people.

Mr. GOLDSMITH. How many panel members examined these photographs in stereo?

Mr. McCAMY. At least, oh, a half dozen.

Mr. GOLDSMITH. Mr. McCamy, and Sergeant Kirk, I would like to ask you both, what was the panel's conclusion regarding the backyard pictures showing Lee Harvey Oswald with the rifle and the revolver and the militant newspapers?

Mr. McCAMY. We found no evidence whatsoever of any kind of faking in these photographs.

Mr. GOLDSMITH. Sergeant Kirk?

Sergeant KIRK. I might add that we also established the camera hat the photographs were taken with.

Mr. GOLDSMITH. Thank you.

I have no further questions.

Chairman STOKES. At this point the procedure will be that the chair will ask some questions of the witnesses, after which the chair will recognize the gentleman from North Carolina, Mr. Freyer.

We will then go to the gentleman from Indiana, Mr. Fithian, for such time as he may consume.

May we have exhibits 133-A, B, and C posted again, please?

Thank you.

Sergeant Kirk and Mr. McCamy, aside from the technical analyses that were applied to these materials, which indicate of course that there is no evidence of fakery in these photographs, are there any practical considerations that suggest these pictures were not faked?

Sergeant KIRK. Well, sir, it was established by the Warren Commission and the FBI that both the papers and the rifle probably did not arrive in Dallas until around March 27 or 28. Mr. Oswald autographed one of the photographs on April 5. He was dismissed from the company he worked with, where he had darkroom operations open to him the following day.

We established that the film was probably developed by an amateur, and the DeMohrenschildt print was probably at least processed and washed and dried by an amateur. It is the panel's belief that the so-called drugstore prints were made much later. So even if we don't regard the testimony of Marina Oswald, where she says he probably took the photographs on March 31, the narrowing of the time in which fakery could have been done has been narrowed considerably. We are talking about the pictures, even if they were taken on March 28 or 29, processed and autographed by April 5, certainly narrows the parameters of time when these photographs could have been faked or altered.

Chairman STOKES. That, then, brings me to another concern I have, and that is whether the panel's analyses of these photos was limited solely to the allegations that have been made by the Warren Commission critics, or did you take into consideration other analyses?

Mr. McCAMY. Yes. The analysis went, I think, quite a ways beyond what the critics had brought up. For example, our photogrammetric measurements over the whole photograph in all of these instances demonstrated the parallax that existed vertically and horizontally. The shadow analysis was extended far beyond anything that people had talked about earlier.

For example, on the bush to the right. That bush appears to most people to have a lot more leaves than it really has, because when you view that in stereo, you see that you are seeing a few leaves and a lot of shadows, and you can tell which is which. It was for that reason that I was able to trace the vanishing point from leaves to the shadows of leaves. We were able to detect that. None of this had been mentioned by the critics.

Chairman STOKES. Also, Mr. McCamy, I didn't get a comment from you regarding any practical considerations.

Did you care to make any comments in that area?

Mr. McCAMY. Yes. It seems to me that there are other practical considerations. If someone else is trying to fake this photograph of Oswald, the backyard had to be available. It had to be available for a period of time long enough for us to be able to detect the passage of time in the pictures. They had to have the rifle and pistol. They had to have these newspapers. So there are quite a number of limitations. The shadows, of course, had to be under very, very tight control, if there was any fakery, and this sort of almost means making the sun stand still.

Chairman STOKES. There has been some testimony here with reference to what is called "transparency overlays."

Do photo scientists consider this a good way of detecting differences between soft-edged images?

Mr. McCAMY. This was a question that came up earlier, and, yes, the panel has considered overlays. All of us have used overlays for various purposes. If you have two images, say, a negative and a positive, or two positives, and they have very sharp edges, if you make two different colored transparencies of those and overlay them, one can see very readily that there is a difference between the two. That is a method of change detection. But if the edges of those photographs are rather soft, then there can be considerable differences between the two images, and you don't see the difference.

So, no, we would not use that technique on soft edge images.

Chairman STOKES. Then how much weight should we give to the argument that Oswald's head appears to be identical in length in each of the photographs? Yet in each case his body seems to vary in size.

Mr. McCAMY. Well, in the first place, the heads are not actually identical in length. If you make measurements, you find that there are small differences. There are large differences in the length of the body.

To explain that, one must use the entire theory of perspective, and you would have to know the tilt of his body relative to the camera axis. Without considering the tilt of his body to the camera axis, it is pointless to make measurements on the photographs.

Chairman STOKES. Sergeant Kirk, let me ask you this: You have had extensive experience in taking mug shots.

Can you discuss with us, in terms of taking mug shots, what your experience has been, in terms of the head remaining constant size while the body appears to vary in size?

Sergeant KIRK. Yes, sir. As you know, probably you know, I know Judge Preyer is aware of this, years ago police departments used to photograph prisoners with high scales in the background and so forth, and as the years came over, we find that as the prisoners refused to stand erect and slouched and so forth, it would give the illusion from photograph to photograph, even though you are photographing the same individual, that he or she would shrink or grow 3 or 4 inches in either direction. But since it is not too easy to slouch the head, the head would still appear to be

basically the same size in the photograph, but yet you would have disparity in appearances in height by the way the person stands.

Chairman STOKES. Is it possible I wonder for you to display that to us or exhibit that to us on any of the exhibits here?

Sergeant KIRK. We don't have an exhibit prepared for you at this time, but I would be most happy to present one to you for the record at a later date.

Chairman STOKES. OK; that will be fine.

Mr. McCamy, I just have one further question.

There has been some evidence here relating to placing rulers on photographs for certain purposes.

Can photographic objects be measured simply by putting a ruler on them?

Mr. McCAMY. I think about the best illustration that bears on this is to suppose that we have a picture of a couple sitting on a bench in the park and the moon is in the background. If one were simply to use a ruler and compare the size of the moon to the size of the young lady's head, you can see how far off it could be. The point being that the distance of objects in a photograph must be taken into account. If you are talking about a linear object of some kind, you have to take into account the tilt of that object to the camera axis. Otherwise the measurements aren't very meaningful.

Chairman STOKES. Thank you, gentlemen.

My time has expired.

The gentleman from North Carolina, Mr. Preyer.

Mr. PREYER. Thank you, Mr. Chairman.

This has been quite an education for those of us who never got much beyond the Brownie camera stage.

I wanted to ask just a couple of questions about the shadows, to make sure I understand your position, and then ask you one general question.

There have been a number of allegations about shadows in these pictures, of course, for example, that the shadows cast by the nose are inconsistent with those cast by the body.

Let me ask you this, Mr. McCamy, or either of you gentlemen.

If a picture is authentic, would you expect all of the shadows cast by objects in the photographs to line up parallel to each other?

Mr. McCAMY. They might. They might be parallel. This would happen in the event that you are looking at a small scene, and the sun were directly overhead, and the camera axis was exactly horizontal. In that case, you would find parallel lines, and we would say that the vanishing point is at infinity. But in most practical cases, as in these photographs, the lines in space are parallel. But when they are photographed on the photograph, they converge toward the vanishing point.

Mr. PREYER. Could we have exhibits F-192 and F-193 again?

These were the exhibits developed I think by the Rochester Institute of Technology.

Mr. McCAMY. Yes.

Sergeant KIRK. Yes.

Mr. PREYER. Referring to those exhibits, I understood you to say that you were able to detect detail in the shadows of those pictures; is that correct?

Mr. McCAMY. That is correct, yes; grass, little rocks, and newspapers, and so on, in the shadows of Oswald.

Mr. PREYER. And what did this suggest to you about the authenticity of the shadows?

Mr. McCAMY. They look completely authentic, yes.

Mr. PREYER. They were not painted in?

Mr. McCAMY. Not painted in. We found no evidence of that at all.

Mr. PREYER. I would like to ask each of you, Mr. Kirk and Mr. McCamy, for your comments on one general question, and, that is, as professionals in this field, what have you learned from this investigation?

Sergeant KIRK. Well, sir, Confucius was once accused of saying a picture is worth a thousand words, and that is obviously not true because he didn't have photography during his day. He is alleged to have said that one scene is worth a thousand tellings.

It appears that a lot of the people who criticized or found fault with these photographs were relying on a lot of tellings, a lot of second and third generation prints. This panel only looked at the original prints, and we all came to one seeing and one telling, in effect. We are saying that we found no indications that these photographs have been faked in any way.

Mr. PREYER. Mr. McCamy, do you have any general comments concerning professionalism and how these investigations should be conducted?

Mr. McCAMY. Well, yes, yes, I do, Mr. Preyer. The allegations have been based on observations made by people least qualified to make the observations. This has resulted in false observations, and, therefore, false premises on which to base theories. The lesson I think is very clearly taught, and I might say taught at extreme expense, and it is the age old lesson that a little learning is a dangerous thing.

I think that all who watch these proceedings or read this record will benefit from the observation that Mr. Blakey had the wisdom, when questions arose, to refer those questions to people who knew the answers or knew how to find the answers.

Mr. PREYER. Thank you, gentlemen.

Mr. Chairman, I have no further questions.

Mr. FAUNTROY. Thank you, Mr. Preyer.

I have two questions as we await Mr. Fithian's arrival and the continuation of the questioning by Mr. Fithian.

First of all, gentlemen, it seems to me that if someone were making a fake photograph to frame Mr. Oswald, that he wouldn't make three fakes, because by making three fakes, he would take three chances of being detected.

I wonder, did your panel consider that at all?

Mr. McCAMY. We mentioned that, yes. It would be ridiculous for someone who was trying to do the fakes to have given us this much opportunity.

You said three pictures would give you three times as much advantage. In fact, having only two pictures gives you something more like 50 or 100 times as much advantage, because you have the stereo viewing there, you see.

Mr. FAUNTROY. You said you examined only the original pictures; is that so?

Mr. McCAMY. Yes. This work was done on original materials.

Mr. FAUNTROY. Were you at any time able to examine the touched-up version which appeared on the front cover of Life magazine?

Mr. McCAMY. No, we did not.

Mr. FAUNTROY. So that you could not tell us what effect touching up may have had on the visual perception by the American people of the photo.

Mr. McCAMY. No, sir.

Sergeant KIRK. Reverend, I would like to say one thing is that obviously when the photograph was printed, they wanted to draw attention to the weapon and to the face. That is where everybody's eyes wanted to go to. And from casual cursory examination of the photograph, it appears that a great deal of emphasis was placed on retouching the silhouette of the rifle and of his face.

Mr. FAUNTROY. That is a casual look at the Life magazine——

Mr. McCAMY. Cover.

Mr. FAUNTROY [continuing]. Cover.

Mr. McCAMY. Yes.

Mr. FAUNTROY. I thank the gentlemen.

Mr. Fithian has now arrived, and the Chair will yield such time as he may require to ask questions of the witness.

Mr. FITHIAN. Thank you, Mr. Chairman.

I would say to the panel, first of all, that most of us are not specialists and, therefore, our eyes play tricks on us and we see things that we think we see, or people tell us that we see in these photos.

To that extent, Mr. White's testimony was very impressive the other day. I hope that you will tolerate my lack of expertise in this area.

I am sure you must think some of the questions I am going to ask you are dumb, but those of us who do not have your background, and only have our eyes and Congressmen must, I think, look at this from a layman's point of view.

First of all, when you look at the twigs and the variety of things that seemed to match up in Mr. White's analysis the other day to the human eye, when you lay one picture over the other, or when you look to see exactly where the twigs are, and when you tie that to the nose shadow, one can construct a pretty good layman's argument for the idea that you are working with that single background, with, you know, a head put on somebody else's body three times.

This morning I was listening carefully when you described the vanishing point concept, which I find fascinating. But I wonder why did the vanishing point lines converge in such a very, very short distance on your chart.

Now, I look at a railroad, even an artist's conception of a railroad track, or a road where it sort of narrows off. It gives me the impression that we are talking about, you know, great distances.

Yet, there are some very, very sharp angles that those lines from the bush and the nose and the rest of it come in, all within 2 feet

on your chart. Could you explain that optical problem that I am having?

Mr. McCAMY. Yes. The vanishing point may be at infinity; that is, if we have parallel vertical lines and the axis of the camera is horizontal. Then we do get parallel lines, and of course that says that the vanishing point is at infinity.

Now, a very slight tilt of the camera will cause a convergence, but it would be a very slight convergence. It starts at infinity and it begins to move inward.

Now, on the photographs that we saw here, the vanishing point of the shadows was substantially below the photographs. If photographs had been made later and later in that day, I have estimated that these pictures were taken about 4 to 4:30 in the afternoon—if pictures were made later, the vanishing point would have continued to move up until finally it would be within the picture area; that is, as the Sun had moved behind the photographer.

In the instance that you cite of the railroad track disappearing into the distance, the vanishing point is in the picture, and you are seeing the vanishing point.

I think that is as far as I can go in describing that phenomenon. The vanishing point can be anywhere from at infinity to right in the picture itself.

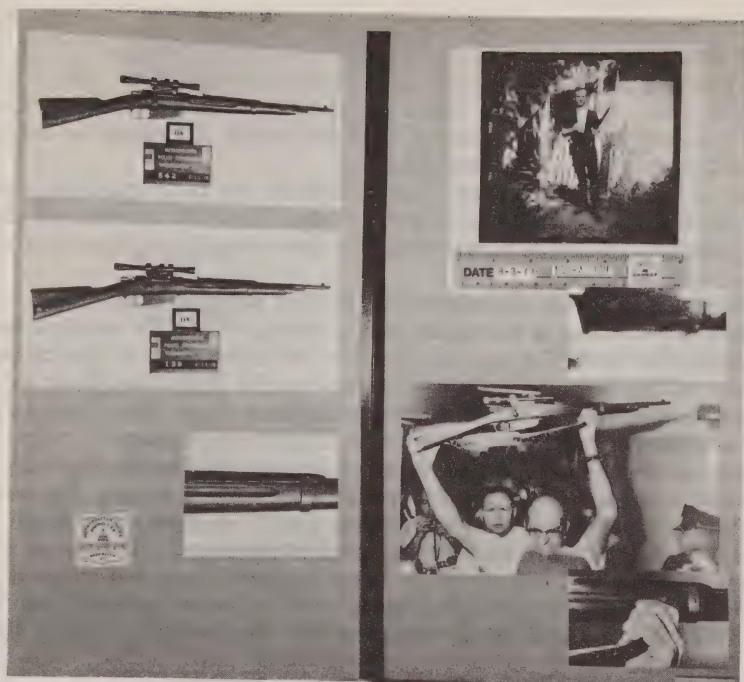
Mr. FITHIAN. All right. Now I want to turn to what perhaps has been among the more sensational parts of the criticism of the Warren Commission with regard to the pictures, and that is the rifle, and particularly the length of the rifle, and the relationship of the stock or the butt of the rifle to the sights, to the barrel.

I would like to have exhibit F-206 put up, please.

Mr. Chairman, I would ask that this be admitted into the record at this point.

Mr. FAUNTROY. Without objection, so ordered.

[The information follows:]



JFK EXHIBIT F-206

Mr. FITHIAN. I believe we have another exhibit with half a dozen rifle pictures on it, if you would put that up. I have forgotten the number.

Perhaps Mr. McCamy or Sergeant Kirk or either or both, if you feel the need to go over there to deal with this, fine. If not, we will continue with you at the table.

Sergeant KIRK. I prepared a demonstration to explain how this phenomenon took place—if we could have it called up.

If I could, I would like to walk over to the easel. The National Archives is here with the weapon itself, and I would like to show the committee how it conducted its demonstration.

Mr. FITHIAN. You are speaking first for the two of you?

Sergeant KIRK. I think so.

Mr. FITHIAN. Basically, I guess I would ask that you describe for the panel whether the rifle that Oswald is seen holding in the backyard pictures is the same one that is in the Archives, that the Warren Commission concluded was the weapon used to shoot John F. Kennedy.

Sergeant KIRK. Yes, sir. You have received testimony from a gentleman—could I have that exhibit back up before, the other photograph like this with the lines going through the rifle. You just took it down, I think.

You received testimony from some people, and this was more than one critic's philosophy—they took various photographs that were taken of the weapon throughout the discovery from the depository to the Dallas police headquarters, until when it reached

the FBI headquarters, and the Warren Commission, and the National Archives.

They attempted to line up all these photographs and find a common line. Then they came to the conclusion that since it doesn't match at certain points, that the stock appeared to be long or short, it was not the same rifle.

Last month we had this rifle delivered to metropolitan police headquarters. With the assistance of Mr. Gary Philips of my shop, we attempted to demonstrate this for the committee, knowing that we had the same rifle.

Not even trying to simulate the fact of someone who is breathing, and adrenaline is pumping and moving this rifle around hard, we suspended the rifle and plumbed it with the axis of the camera, the lens of the camera is at the same height from the floor as the weapon is, top photograph, and the distance from the stock to the tip of the barrel is the same distance. That is zero base.

Then we simply swung the barrel 3 inches further away from the lens, and you can see a disparity here. Then we brought the barrel back to zero base and swung the butt just 3 inches away from the camera, and it appears that the stock has been cut off.

Then we brought the weapon back to zero base and pushed the barrel 5 inches away from camera, just 5 inches, something like this, and back to zero base, and swung the stock 5 inches away from the camera.

Even though we know we have the same weapon, it appears to be of greater length, and there are certain points that do not match up.

The logo, as you can see here, the departmental logo, was stationary, and the lines pass through the letters precisely the same place every time, but they do not pass through various parts of the rifle at the same time because we simply changed the orientation of the rifle in relation to the camera no more than 5 or 3 inches, that much.

Certainly when this weapon was carried, it was carried in all kinds of conditions, and it is unrealistic for this kind of comparison to be conducted because no consideration was considered for tilt or loss of perspective.

Mr. McCamy, I think, might have something to address this issue as well.

Mr. FITHIAN. Mr. McCamy, would you like to add to that? Would you hold on to the rifle for a minute, Sergeant, because I had another question to ask.

Mr. McCamy, do you want to add something to that?

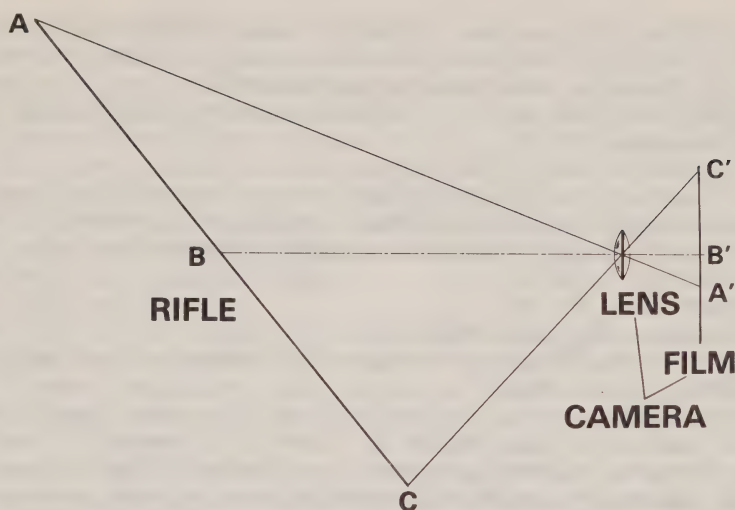
Mr. McCAMY. Yes. Do we have an exhibit on tilt?

Mr. GOLDSMITH. I believe that is F-389, Mr. Chairman. I move for the admission of this exhibit.

Mr. FITHIAN. I would ask the exhibit be entered into the record at this point, Mr. Chairman.

Chairman STOKES. Without objection, it may be entered.

[The information follows:]



JFK EXHIBIT F-389

Mr. McCAMY. Suppose that we have a rifle for which the midpoint is known, and suppose we have a camera. The two elements shown are the lens and the film.

Point A on one end of the rifle is imaged by the lens at A-prime. Point B at the center is imaged at B-prime. Point C at the other end is imaged at C-prime.

These two lengths on the rifle are equal. They are 14 inches each. So, from A to B is equal to B to C. However, when they are imaged over here, A-prime to B-prime is only $1\frac{1}{2}$ inches, while B-prime to C-prime is 4 inches.

Mr. FITHIAN. Is what?

Mr. McCAMY. Four inches.

Mr. FITHIAN. Four inches.

Mr. McCAMY. So, you can see that because the rifle is tilted away from the camera, the size of the image changes over here. This is a very well known phenomenon in photogrammetry.

The tilt of the camera must always be taken into account when we use aerial photographs to make maps. Otherwise, the maps would not be accurate.

Knowing that this was the case, and that there had been allegations of this kind, I went back and obtained the photographs that had been taken as the rifle was taken from the book depository, photographs taken by newspaper reporters in the police station, photographs taken by the Dallas police, by the FBI, I myself photographed the rifle. It was photographed by the Washington, D.C. Metropolitan Police Department.

I obtained all of these photographs and went through the proper photogrammetric analysis of those photographs, finding the distance and the angle such that the rifle would image on to the film.

I worked with 10 different parts of the rifle, located along these areas, and computed the distances. When all of those distances on all of those photographs, 12 photographs, 10 different distances, when all of these were compared with the lengths on this rifle, the average error was 1 millimeter.

Mr. FITHIAN. So it is your conclusion, then, that there is just no way that you could do measurements unless you have the rifle exactly in the same relationship to the camera?

Mr. McCAMY. You cannot do measurements without taking the tilt into account.

Mr. FITHIAN. All right. Thank you.

Now, Sergeant, the FBI concluded that and they told the Warren Commission that the mark on the forestock of the rifle that you are holding was not sufficient to identify positively this rifle. Do you agree with the FBI?

Sergeant KIRK. No, sir.

Mr. FITHIAN. Why don't you?

Sergeant KIRK. Well, sir, we refer to this as a random pattern.

Mr. FITHIAN. As a what?

Sergeant KIRK. As a random pattern. You can expect this weapon, just as you can expect all those TV cameras, to receive certain amounts of damage when it is handled. If you were to examine those cameras, even though they are the same, you would not find dents and chips out of the surface in precisely the same area.

Just as the chances of a tire running over the same pieces of glass to cut the tread would be exactly the same. We have examined this chip out of the forestock and we have determined it is quite old, some attempt is made to sand it down, and it was finished the same color as the stock.

It was probably damaged in one of two ways. It received a shock on the top of the forestock that knocked off the chip, which means the top forestock has been replaced, or the stock was damaged as it was taken apart.

It is my opinion that this is unique and unto itself. As you can see here, we photographed the duplicate weapon that was purchased from the distributor of this rifle, the one who allegedly sent it to Dallas, which is photographed here on the top, and it does not show any of the damage that the second photograph does.

I have made a photographic enlargement of the chip out of the forestock.

We have here a United Press International photograph taken of the rifle being displayed outside of the homicide office in the Dallas police department headquarters. A photographic enlargement shows the same chip out of the stock in precisely the same location, going in the same direction, and same dimensions.

Taking 133 DeMohrenschildt, which at the time was the best photograph we had, we find the same defect in the wood, the same dimensions, and the same location. I might add that 134, which was discovered only this weekend in the Archives, even better illustrates this damage.

I might add, in all candor, with respect to the FBI, they did not have 133-A DeMohrenschildt. They did not have 133-A Stovall. They did not have 134 or did not recognize 134 as being first generation print.

So, their conservativeness they had then was based on the amount of evidence they had to work with, not on what we had to work with today.

Mr. FITHIAN. Then I take it, it is your testimony that the chip or the defect is sufficiently unique, with the corners or whatever, that spotting it in each of the pictures at least gives you the confidence that that rifle you are holding is the rifle that was photographed?

Sergeant KIRK. When I match that up with the scientific data Mr. McCamy has obtained from measuring it, this has to tilt the scales in the direction, yes, indeed it is the same rifle.

Mr. FITHIAN. I am going to ask Mr. McCamy in just a minute about any analysis he performed on this chip. Did you make measurement analysis and so forth?

Mr. McCAMY. Yes.

Mr. FITHIAN. All right. I will come back to you in just a minute.

Do you know, Sergeant, whether or not the FBI at the time of the Warren Commission went through a process that would be the equivalent of yours, plus Mr. McCamy's, or can you shed any light on that?

Sergeant KIRK. The only testimony that I found in the Warren Commission report was relying on the testimony from one agent, Agent Shaneyfelt. There is no indication I could find where it was subjected to the analysis that this committee has on this weapon.

Mr. FITHIAN. Mr. McCamy, can you give us any measurement or photogrammetric process or anything that you did to further nail down this I think vital question.

Mr. McCAMY. Yes. We made measurements, measurements on the rifle, and on the photographs to ascertain that indeed this particular chip was in the right place.

Beyond that, however, I went to the Archives and made 21 photographs of the rifle using a variety of different kinds of illumination. On those photographs, it was possible to see a large number of nicks, scratches and so on, distinguishing marks.

I then went back through all of the photographs I had mentioned to you. In many instances—I believe in 56 different instances—I was able to find markings that appear on this rifle that were on the photographs that were made back there on the day of the assassination.

So, we are very confident that this is indeed the rifle that was carried from the book depository—oh, incidentally, I can carry it farther than that.

I found distinguishing marks of this rifle on a motion picture that was made at the time the police officer picked the rifle up off of the floor of the book depository. So that I think is very convincing evidence that it is the rifle.

Mr. FITHIAN. So what you are saying then is that in addition to the defect or the chip, whatever, you photographed and used—I guess what I would put sort of the equivalent of the camera scratch marks—you put those on the photographs that you took and then compared them analytically with the other defects that showed up on the rifle, or marking characteristics in other photographs that were existing at the time of the Warren Commission; is that what you are saying?

Mr. McCAMY. That is right. They were compared on all of those photographs. I did not do photogrammetric measurements on all of them.

Mr. FITHIAN. Did you have any problem? Did you have any mismatches?

Mr. McCAMY. No, there were no mismatches. But it is, I think, appropriate to point out that whether or not one will see a particular scratch or discoloration depends strongly on illumination.

So, you cannot expect that all of the marks will show on all of the photographs.

Sergeant KIRK. I might point out, Mr. Fithian, since this is very brightly illuminated in this area here, you might not necessarily be able to see the same detail as in this photograph, which is evenly illuminated.

So, what Mr. McCamy is saying, it seemed identifiers would not show up in each photograph because they are not illuminated in the same manner.

Mr. FITHIAN. Thank you.

I have a good many more questions, Mr. Chairman. I would like to run over and record my vote.

I wonder if the counsel—I am not sure that I have done all that I wanted to do with this rifle section—but if the counsel has any questions of you. Otherwise, I would ask that we recess.

My running time is 5 minutes from here to the Chamber and back. I would ask that we recess for 5 minutes.

Mr. FAUNTROY. Without objection, we will go into recess for 5 minutes.

[Brief recess.]

Mr. FAUNTROY. The committee will come to order.

We will resume questioning of the witnesses by Mr. Fithian at this time.

Mr. FITHIAN. Thank you, Mr. Chairman.

I would like to take one additional area of questioning at least, and that is whether or not if someone were really a photographic scientist, and really knew his or her stuff, whether they could by some process, however elaborate, fake a photograph and make it come out this good.

Is that improbable, beyond the realm of possibility, or what? How do you describe it?

Mr. McCAMY. We gave a lot of thought to that in our committee. We must say that we believe it is possible to make a fake photograph that we would not be able to detect.

Mr. FITHIAN. Did you attempt then to see how difficult it would be to fake this? I know you mentioned several times that you would have to catch the Sun at the right time, and have the backyard and so on.

Mr. McCAMY. Yes. It was I who made the assertion in our committee that if conditions were right, and if it were done right, and that a photographic scientist used what he knew to make a fake photograph, he could fool me.

So that sounded almost like I was throwing out some kind of challenge. One of the other members of the panel, Mr. Scott, is a very competent photographic scientist. He was once the vice president, the engineering vice president of the Society of Photographic Scientists and Engineers.

He spent 40 hours with an assistant preparing a fake photograph of a man standing in a backyard. When he presented the photo-

graph, he mailed it to me, I pulled it out of the envelope, and as I pulled it out of the envelope I said it is a fake.

I was rather surprised that it was that easy. As it turned out, what he had done was to make a photograph, a 6-foot photograph of a 6-foot man, and this was placed in the backyard, and it was photographed.

But there was a thing that caught my eye instantly; that is, that there were shadows that were cast by parts of a dark suit. There were shadows cast by parts of a railing immediately behind the man.

When the suit was in full sunlight, it exactly matched the railing. But the shadows on the suit didn't match the shadows on the railing.

Now, that would not be the way it would have been if it had been a true photograph.

So, that was an illustration to us that it is not quite as simple as it appears to be. Frank Scott came back to the committee saying this is not as easy as it looks.

So, I believe that it would be possible to make a fake, but it is very difficult.

Mr. FITHIAN. I thought, if I were trying to fake a photograph, I would not try to make it cut across the chin or the face. I would make it at say like the shirt collar line, or somewhere where there is already a line.

Now, that is just my own layman's view, that I wouldn't try to match up, a cut across the face. I guess what I am asking you is if you were faking a photograph, is that where you would try it?

Mr. McCAMY. Yes. I think it makes very good sense to attempt to follow some natural line. If you can do that, it is going to be less noticeable. However, in the analysis that we did, of course we looked for exactly that kind of thing, and we did not find any evidence that this had been done on these photographs.

Mr. FITHIAN. Here is a thing that I had the greatest difficulty with in terms of my own viewing of the photographs, is the squareness of the chin.

I wonder, Mr. Chairman, if we could ask that that multiple photograph, that chart with half a dozen Oswalds on it, plus the two, could be put back up.

While we are doing this, let me preface my question by saying that sitting here and looking at your exhibit, I did not visually at least identify any other chin that was even approximately as square as the one in the backyard photograph—from all of the pictures that you put up.

I could not see that. I hate to return to what you have already done. But it still puzzles me and troubles me. That seems to be one of the strongest points of the critics, is the misshape of the chin.

I want to make sure I understood your testimony.

It was your testimony that it was the light and shadow combination of an overhead Sun or whatever?

Mr. McCAMY. Yes.

Mr. FITHIAN. Do I understand you correctly?

Mr. McCAMY. Yes. Unfortunately, we were not able to find other photographs of Oswald himself illuminated from a very high angle.

It would have been nice to have had such a photograph, but we didn't have it.

The closest approximation to the overhead lighting is in the upper right-hand corner of that display. That is more of a portrait type lighting. But even there the chin begins to be a little bit more flattened because that shadow is at the bottom of his chin.

Mr. FITHIAN. In the photo, in the two large blowups, the right-hand photo, is it your testimony, then, that the point of the chin, which obviously doesn't disappear—and I find it difficult to believe that just by changing your teeth or your mouth position it really makes that much difference—is it then that the point of the chin disappears in the shadow of the chin in layman's terms?

Is that what you are saying happens in that photograph?

Mr. McCAMY. Yes, the lower part of the chin is not illuminated, so you don't see it. It just disappears in the shadow.

Mr. FITHIAN. I am no longer troubled by the line across the chin because I think you can see that even in that much earlier picture before it is so pronounced in the upper right-hand corner of it—what is the exhibit number of the left-hand exhibit there—386.

I am not troubled by that line anymore. That doesn't bother me. But the absence of the point of the chin altogether does.

Let me ask you one more question, then.

Is the angle of the Sun and the shadows elsewhere in the picture—in other words, is that combination of the Sun and the other shadows convincing? With that Sun and that position, would that chin cast that shadow, so that it would blur out in a picture?

Mr. McCAMY. Yes. I think that the best evidence that we have for that is the police department profile view. Can we return to that?

Unfortunately, we do not have direct evidence. We do not have a photograph, other photographs of Oswald illuminated at this angle. But here we see that his chin comes down and back. There is apparently a rather wide, broad, flat area here.

If this were illuminated from above, you can see that the shadow, the shadow might very well be cast, even as high as this. It could be cast fairly high. If it were, then the apparent point that one sees in his earlier photographs would not show up.

This would appear to move up in this direction. In this photograph that was taken in the police station, he does have a fairly flat chin there. There is a cleft in there, and that seems to flatten it somewhat.

So, it looks to me as though this is quite consistent with a high level of illumination from high above him, casting this shadow across there.

Mr. FITHIAN. Thank you, Mr. McCamy. You may return.

I would ask the clerk to put up exhibit JFK F-208.

Now, this is the picture of the model taken, I believe. What I want to ask, Mr. McCamy, is—well, then I want the one of the model, whatever the number is, F-271.

I just want to ask one question. What assumptions did you make when you were doing the tilting and angling for that photograph?

Mr. McCAMY. This was just an illustration of an effect.

Mr. FITHIAN. Let me rephrase a different question. Are you saying that, or aren't you saying, just to push you a bit, that in

order to keep that shadow right under the nose, in the same place, that you (a) have to tilt the head one way and, at the same time, rotate it on its axis a precise point, to a precise point, in order to keep the shadow there? Third, you are assuming that the camera, then, would have to move in somebody's hand to the next position.

Now, I am not a statistician, but the probability of that, all three of those things being present in order to keep that shadow there, seems to the layman to be a little high. It seems like you would have to—the probability would be that those three things would not come together at the same place, at the same time.

Am I way off base, sir?

Mr. McCAMY. No. I don't think so. I think that you are right in saying that there would be a number of assumptions necessary, if we were to try to interpret the Oswald photograph from this demonstration of this effect.

But that is not the way the interpretation was done. In fact, the interpretation was done by a vanishing point analysis, and this is the standard technique for studying the shadows in a photograph.

If we bring back the vanishing point analysis photographs, you can, if you like, examine the lines and you will see that the shadows are where they ought to be. That is the best analysis.

Mr. FITHIAN. Thank you. I have just one other question, Mr. Chairman.

It really isn't a question so much as a statement, and hopefully a response.

Historically I think it is fair to guess that since we have had criticism and analysis and assumptions and conclusions drawn by critics over the last 15 years, there are probably going to be some in the next 15 years.

In the area of photographic analysis, and assuming that there will be those who may differ with your conclusion and Sergeant Kirk's conclusion over the next while, I would like for you to tell the panel what kind of tests, what kind of approaches that you would use or other photographic experts would use, if they wanted to disprove your work 5 or 10 years hence, what kind of standards, what kind of tests would they apply to this.

Let me just go one step further. I take it that the simple transparency overlay you reject as inadequate, scientifically speaking to prove conclusively one way or the other.

Now, I guess what I am asking is, what would you insist that your peers or others who want to dispute and finally refute your conclusion, what kind of tests would you set up for us?

If I wanted to go out on my own in another 2 or 3 years and prove that you are wrong, what do I have to do? What kind of things will I have to do to convince other experts?

I won't convince you because you have concluded that you are right. But convincing others.

Mr. McCAMY. Fortunately, the analysis that we have done, and most of the things that I have talked to you about, are matters of measurement rather than matters of opinion. So that to check up all you would have to do is go back, get the original materials and go ahead and make the same measurements and go through the analysis.

You would want to take this up with other photogrammetrists. You might want to refer a question to the American Society of Photogrammetry. Their offices are right across the river in Virginia.

You could refer a question to the Optical Society of America, with headquarters here in Washington. You could refer a question to the Society of Photographic Scientists and Engineers, Inc., in the District of Columbia. They are all right here.

I might say that the American Society of Photogrammetry and the Society of Photographic Scientists and Engineers generally annually meet here in Washington, D.C. because there are so many specialists in that field right here.

So, there are specialists around, there are scientific societies that you could call to your aid. They would confirm that you were using the right methods, using the methods that are used for mapmaking and so on, and then you can go back and do your analysis.

I had that in mind, in fact, when I did the analysis of the length of the rifles, the length of the components of the rifles, on all of those older photographs. I could have taken the dimensions and put them in a giant computer and asked for the answer.

I didn't do that. Instead, I derived the simplest equations that would serve this purpose. My report shows the derivation for the equations. Then I made the measurements with very simple measuring tools, simple millimeter scale, and some straight edges, and then did all the computations on a pocket calculator, with the thought in mind that even a high school mathematics teacher could, if he liked, follow me every step of the way and confirm whether or not I was right.

Mr. FITHIAN. Is this kind of detail in your report, written report to the committee?

Mr. McCAMY. Yes, sir.

Mr. FITHIAN. Mr. Chairman, I have no other questions.

Chairman STOKES. The time of the gentleman has expired.

Gentlemen, at the conclusion of any witness' testimony, under the rules of the committee, that witness is entitled to 5 minutes in which to explain or make any comment they so desire upon the testimony they have given before this committee.

Sergeant Kirk and Mr. McCamy, at this time I extend to each of you 5 minutes for that purpose.

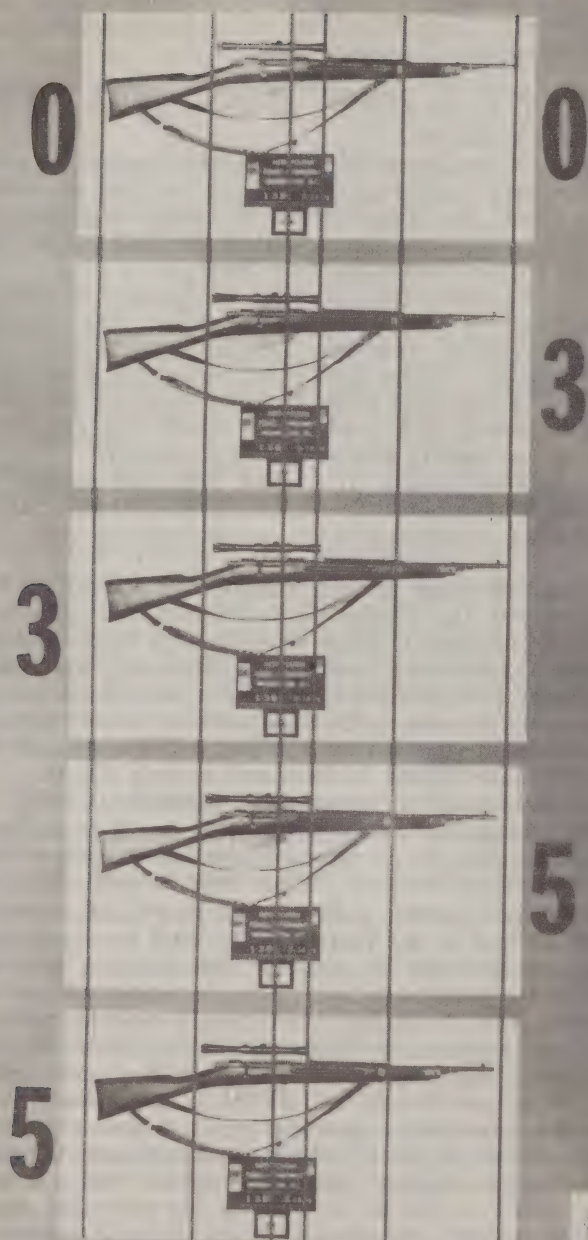
Mr. McCAMY. I have no comments, sir.

Sergeant KIRK. I have none at this time. I understand I will be back, so I will reserve.

Chairman STOKES. Right. Thank you very much, gentlemen. Both of you are excused at this time.

Chairman STOKES. The committee will take a 5-minute recess and then we will resume with the next witnesses. Before doing so, let the record show that exhibit F-207 is hereby entered into the record at this point.

[JFK exhibit F-207 follows:]



Chairman STOKES. The Chair will take a 5-minute recess.
[Brief recess.]

Chairman STOKES. The committee will come to order.
The Chair recognizes Professor Blakey.

NARRATION BY G. ROBERT BLAKEY, CHIEF COUNSEL

Mr. BLAKEY. Thank you.

Within hours of the arrest of Lee Harvey Oswald for the assassination of President Kennedy, officials in the United States began to speculate about the significance of Oswald's defection to the Soviet Union in 1959 and his activities in that country until returning to the United States in June 1962.

Specifically, the troubling question was asked whether Oswald had been enlisted by the Soviet secret police, the dreaded KGB.

United States-Soviet relations had been turbulent during the Kennedy Presidency. There had been major confrontations—over Berlin, where the wall had come to symbolize the barrier between the two superpowers, and over Cuba, where the emplacement of Soviet missiles had nearly triggered world war III.

A nuclear test-ban treaty in August 1963 had seemed to signal détente, but in November tension was building again, as the Communists harassed American troop movements to and from West Berlin.

Cuba, too, was as much an issue as ever. In Miami, on November 18, Kennedy vowed the United States would not countenance the establishment of another Cuba in the Western Hemisphere.

The Warren Commission considered, of course, the possibility of Soviet complicity in the assassination but concluded there was no evidence of it. In its report, the Commission noted that the same conclusion had been reached by Secretary of State Dean Rusk and Secretary of Defense Robert McNamara, among others.

Rusk testified before the Commission on June 10, 1964:

I have seen no evidence that would indicate to me that the Soviet Union considered that it had any interest in the removal of President Kennedy—I can't see how it could be to the interest of the Soviet Union to make any such effort.

Then, in February 1964, a Russian saying that he was a KGB agent sought asylum in the United States and he seemed to answer the question categorically by denying Oswald had been connected with the KGB.

According to Yuri Nosenko, a self-proclaimed former KGB officer, he had been assigned in 1959 and 1963 to the KGB's American tourist section. This assignment, he said, had afforded him an opportunity to review Oswald's KGB file in those years.

Nevertheless, Nosenko's assertion did not end the mystery. In fact, it only tended to complicate it because some officials of the Central Intelligence Agency doubted Nosenko was a bona fide defector. Some went so far as to suspect his defection was a KGB disinformation mission, an effort to mislead the American Government.

Beginning in April 1964 hostile interrogations of Nosenko were approved and initiated. He was cut off from the world and confined to a single room. Every movement he made was monitored.

The hostile interrogations continued for over 3 years. Eventually Nosenko was released from confinement and a senior official was

assigned to interview him anew. This time, interviews were conducted in a more friendly atmosphere.

Ultimately, the official wrote a report detailing his conclusions. At the termination of this year-long process, it was decided that Nosenko was indeed a bona fide defector. He was given a substantial sum of money and hired as a CIA consultant, a position he holds to this day.

In its investigation of the Kennedy assassination, the Warren Commission was aware of the Nosenko issue, but it was able to make little of it and opted not to refer to it in its reports.

News accounts of the Nosenko matter have not been particularly informative, owing to the limited nature of the generally classified information that they were reporting. A book by Edward J. Epstein, "Legend, the Secret World of Lee Harvey Oswald," published in early 1978, did raise some questions about Nosenko's information on Oswald, though Epstein did not have complete access to all of the FBI and CIA files on Nosenko. Apparently, he depended on secondhand accounts.

Mr. Chairman, the evidence to be received today is directed toward the public resolution of a twofold issue with regard to Nosenko.

First, are his statements about Oswald credible? If so, the issue of Soviet involvement in the assassination is of course moot. But if not, the converse does not necessarily follow.

Nosenko can be a bona fide defector and still not be a valid source of information about Lee Harvey Oswald. Deciding not to believe what Nosenko told about Oswald does not therefore necessarily lead, absent other information, to any conclusion about Nosenko's general bona fides or Soviet involvement in the assassination.

Nosenko is only one possible source of evidence on this point. If he turns out to be good, he may be decisive; if he turns out to be bad, it may simply mean that there is no good source of information on this point, available to the American Government, and nothing definite can be said about this question by the American Government.

Consequently, because the mandate of the select committee as the committee has indicated to the staff was limited to determining the facts and circumstances surrounding the President's death, no examination of the general question of the bona fides of Mr. Nosenko has been made. That question properly lies within the jurisdiction of other bodies.

Second, what was the quality of the performance of U.S. government agencies in the Nosenko affair? The agencies whose performance is at issue are the CIA, the FBI, and of course the Warren Commission itself.

Mr. Chairman, Nosenko has been given a new identity by the CIA, and the agency as well as the FBI, believes that to compromise it could put him in great personal danger. Consequently, he cannot testify before the committee in this public session, either in person, by film, or by tape recording, although each of these alternative methods was explored with him and with those in charge of his security.

He did, of course, testify in person before two closed sessions of this committee on May 19 and 20.

In addition, he was deposed and extensive files were read, both at the CIA and the FBI. Interviews and depositions of other principals were conducted by the committee or the staff.

While virtually all of the material reviewed either by the committee or the staff is classified, it is possible to tell the essential aspects of the Nosenko story without compromising the national interest.

The CIA as well as the FBI has cooperated with the committee by facilitating the declassification of the basic outlines of the story.

A staff report on the committee's investigation has been prepared by the staff. Before summarizing the staff report, which will be made public, Mr. Chairman, I would like again to emphasize that for those who follow the committee's work that the question of Nosenko's bona fides lies outside of the jurisdiction of the committee.

Its mandate is limited. It is to weigh Nosenko's credibility as it bears on the career of Lee Harvey Oswald and to evaluate the performance of Federal agencies in the matter. Other questions are for other bodies.

Finally, I note that the staff report does not contain any conclusions on either of these issues. Conclusions remain in the province of the committee to formulate and decide in December.

Mr. Chairman, I would ask at this time that the staff report on Mr. Nosenko be entered in the record as JFK exhibit No. F-425.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[JFK exhibit F-425 follows:]

JFK EXHIBIT F-425

OSWALD IN THE SOVIET UNION:
INVESTIGATION OF YURI NOSENKO

STAFF REPORT
OF THE
SELECT COMMITTEE ON ASSASSINATIONS
U.S. HOUSE OF REPRESENTATIVES
NINETY-FIFTH CONGRESS

Second Session

September 15, 1978

HOUSE SELECT COMMITTEE ON ASSASSINATIONS

Ninety-Fifth Congress

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OSWALD IN THE SOVIET UNION:
INVESTIGATION OF YURI NOSENKO

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PERSONAL HISTORY

Nosenko has testified to the Committee that he was born Yuri Ivanovich Nosenko in the town of Nikolayev in the Ukraine, October 30, 1927. His father, Ivan Isiderovich Nosenko, was Minister of Shipbuilding in the U.S.S.R. prior to his death in 1956.

Continuing with Nosenko's biography:

He attended the Institute of International Relations from 1945 to 1950, then entered Navy Intelligence and served in the Far East and the Baltic region until 1953. On leave in Moscow in 1953, he joined the MVD (later the KGB). He was assigned to the First Department of the Second Chief Directorate, which was responsible for surveillance and recruitment of U.S. Embassy personnel. As a KGB officer, he began studying foreign languages.

In 1955, Nosenko was transferred to the Seventh Department of the Second Chief Directorate, a department newly formed to monitor tourists to the Soviet Union. Surveillance and recruitment remained his duties.

In 1956, Nosenko was promoted to senior lieutenant. In 1957, the year he was accepted as a member of the Communist Party, he was made a captain and named deputy chief of his department.

In January 1960, Nosenko was transferred back to the First Department of the Second Chief Directorate, and in January 1962, he returned to the Seventh Department as chief of his section.

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Again, he was assigned to coordinating the surveillance and recruitment of American tourists. In July 1962, he was promoted to deputy chief of the Seventh Department, Second Chief Directorate.

NOSENKO BECOMES KNOWN TO U.S. INTELLIGENCE

Nosenko came to the attention of U.S. intelligence agencies in June 1962 in Geneva where he was serving as the security escort to a Soviet disarmament delegation. He identified himself to the CIA and offered to sell information for 900 Swiss francs. He explained he needed the money to replace KGB funds he had spent on a drinking spree. He has since said he did not really need the money but felt an offer simply to give away the information would be rejected, as it had been with similar offers by other Soviet agents.

The CIA agreed to deal with Nosenko, and he promised to make contact the next time he came abroad. He made it clear he would not defect, however, because he would not leave his family. He also told the CIA never to contact him in the Soviet Union.

NOSENKO DEFECTS

On January 23, 1964, Nosenko was heard from again. Back in Geneva as escort to a disarmament delegation, he informed the CIA this time he wished to defect, giving as his reason disillusionment with his government and doubt that he would be

able to leave the U.S.S.R. soon again. The CIA was surprised by his sudden decision, but Nosenko was adamant.

On February 4, Nosenko revealed he had received a telegram ordering him to return to Moscow directly. He said he feared the KGB was aware he was working with the West, and his life depended on his being permitted to defect immediately. The CIA agreed, and he was spirited away. (Nosenko later admitted the recall telegram was a fake. He had made up the story to get the CIA to agree to his defection without further delay.)

DOUBTS ABOUT NOSENKO'S BONAFIDES

By April 1964, Nosenko had been in the U.S. for nearly two months. Already, top officials of the Soviet Russia and Counter-Intelligence sections of the CIA had nagging doubts as to whether he was a bonafide defector. Their misgivings were based on a number of points:

1. Many leads provided by Nosenko had been of the "give-away" variety, that is information that is no longer of significant value to the KGB, or information which, in the probable judgment of the KGB, is already being probed by Western intelligence, so that there is more to be gained from having a dispatched agent "give it away" and thereby gain credibility.

2. A background check of Nosenko -- of his schooling, military career and his activities as an intelligence officer -- had led U.S. officials to suspect Nosenko was telling them a "legend," that is supplying them with a fabricated identity. Certain aspects of Nosenko's background did not "check out," and certain events he described seemed highly unlikely.
3. Two defectors who had preceded Nosenko were skeptical of him. One was convinced Nosenko was on a KGB mission, the purpose of which was to neutralize information he had provided.
4. Information Nosenko had given about Oswald aroused suspicions. The chief of the Soviet Russia Section had difficulty accepting the statements about Oswald, characterizing them as seeming "almost to have been tacked on or to have been added, as though it didn't seem to be part of the real body of the other things he had to say, many of which were true."

INTERROGATION OF NOSENKO BY THE FBI ABOUT OSWALD

Statements by Nosenko at the time of his contact with the CIA in 1964, revealing he had information about Lee Harvey Oswald,

led to his being questioned by the FBI upon arrival in the U.S. He was interviewed in late February and early March. It is not known if these sessions were tape recorded, but as of today all that exists are statements prepared by the interrogating FBI agents, a four-page report of the February sessions, a nine-page report of those in March.

Nosenko told the FBI about his knowledge of Oswald and the fact the KGB had no contact with him.

The conclusion of the March report reads as follows:

On March 4, 1964, Nosenko stated that he did not want any publicity in connection with this information but stated that he would be willing to testify to this information before the Presidential Commission, provided such testimony is given in secret and absolutely no publicity is given either to his appearance before the Commission or to the information itself.

The report noted that on March 6 Nosenko inquired if the information he furnished on March 4 regarding Oswald had been given to the appropriate authorities. He was advised that this had been done.

NOSENKO IS PLACED IN ISOLATION BY THE CIA

On April 4, 1964, CIA officials decided to place Nosenko in isolation and to commence hostile interrogations.

First, he was subjected to a polygraph, one designed to insure a proper atmosphere for the hostile interrogations. The CIA polygrapher was instructed to inform Nosenko he had lied,

regardless of the actual outcome of the test. (In his report, the polygrapher wrote his true conclusion, which was that Nosenko had indeed lied.) The official position now stated by the CIA, is that the test was "invalid or inconclusive."

The conditions of Nosenko's isolation have been described by the Rockefeller Commission as "spartan." Both Nosenko and the CIA were asked by this Committee to describe them.

Nosenko says the room to which he was confined had "a metal bed attached to the floor" and "the only furniture in the room was a single bed and a light bulb."

The CIA states, "Nosenko received a regular diet of three meals a day. Periodically during this time, his diet was modified to the extent that his portions of food were modest and restricted."

Nosenko states he "was not given a toothbrush and toothpaste and food given to me was very poor. I did not have enough to eat and was hungry all the time."

The CIA:

"Nosenko did not have access to TV, radio or newspapers... He was provided with a limited number of books to read from April 1964 to November 1965 and from May 1967 to October 1967. His reading privileges were suspended from November 1965 to May 1967."

Nosenko:

"I had no contact with anybody to talk. I could not read. I could not smoke..."

The CIA states Nosenko was "under constant visual observation from April 1964 to October 1967," the period of his isolation.

Nosenko:

"I was watched day and night through TV camera...I was desperately wanting to read and once, when I was given toothpaste, I found in the toothpaste box a piece of paper with a description of compound of this toothpaste. I was trying to read it under my blanket, but guards noticed it and again it was taken from me."

Both Nosenko and the CIA agree that conditions improved markedly beginning in the fall of 1967 (the end of the isolation).

THE CIA INTERROGATES NOSENKO ABOUT OSWALD

Nosenko was questioned about Lee Harvey Oswald on five occasions in 1964 -- on January 23 and 30 in Geneva, and on July 3, 27, and 29 in the U.S. The sessions of July 3 and 27 were of particular interest to this Committee, since they were detailed and specific about Nosenko's knowledge of Oswald. The questions were chronological, and an attempt was made to touch all aspects of Oswald's stay in the Soviet Union. Areas of inquiry included Oswald's visa application and his entry into the U.S.S.R.; KGB contact with Oswald; Oswald's request to remain in the U.S.S.R.; the denial of this request and Oswald's subsequent suicide attempt; Oswald in Minsk and his job in a radio factory; Oswald's marriage to Marina; Oswald's attempt to return to Russia via Mexico City in 1963.

The interrogator, an employee of the Soviet Russia Section, conducted the interviews in English and tape recorded them.

Nosenko related that he was assigned to the Seventh Department of the Second Chief Directorate when Oswald arrived in the Soviet Union in 1959, at which time Nosenko's section had responsibility for counterintelligence operations against American tourists.

At the time Oswald asked to remain in Russia, Nosenko reviewed information the KGB had on the American. Soon after Oswald went to Minsk, Nosenko was transferred and lost contact with him. However, he became reinvolved in the case right after the assassination.

Nosenko said that as soon as President Kennedy's assassin was identified as a man who had lived in the Soviet Union, the KGB ordered that Oswald's file be flown to Moscow and reviewed to determine whether there had been any contact between him and Soviet intelligence. Nosenko said further he was assigned to the review of Oswald's file. Based on that review, as well as his earlier contact with the case, he was able to report positively that Oswald had neither been recruited nor contacted by the KGB.

In his July 27 interview, Nosenko was handed a transcript of a tape recording of the July 3 session. He read each question

aloud and made corrections or additions. He can be heard clearly doing so on the tape -- reading each question and answer, interjecting "right" after most answers, or simply moving on to the next question. Occasionally, he elaborates on an answer.

Nosenko's Second Polygraph Test

At the time of his second polygraph examination -- in October 1966 -- Nosenko was again asked about Oswald. The CIA examiner, the same one who had administered the first test, concluded Nosenko was lying, although the official Agency position now is that the test was:

"invalid or inconclusive because the conditions and circumstances under which it was administered are considered to have precluded an accurate appraisal of the results."

The Soviet Russia Section Report

The Soviet Russia Section of the CIA wrote a 900-page report based on its interrogations of Nosenko, though it was trimmed to 447 pages by the time it was submitted in February 1968. It came to the following conclusions:

Nosenko did not serve in the Naval reserve, as he had claimed.

He did not join the KGB at the time nor in the manner he described.

He did not serve in the American Embassy section of the KGB at the time he claimed.

He was not a senior case officer or Deputy Chief of the Seventh Department, as he stated he had been.

He was neither Deputy Chief of the American Embassy section nor a supervisor in that section.

He was not Chief of the American-British Commonwealth section.

He was not a Deputy Chief of the Seventh Department in 1962, as he had claimed.

THE 1968 REPORT

High officials of the CIA, including DCI Richard Helms, were aware of the Nosenko dilemma by the time the Soviet Russia Section report was being drafted. In mid-1967, a career officer in the Office of Security was assigned to write a critique of the handling of Nosenko.

The officer had never met Nosenko, but he had been connected with the case from the outset. As a security officer, he had been briefed on information Nosenko had supplied, and he had devoted considerable time and effort running down leads provided by Nosenko and other KGB defectors.

Although he had been close to the Nosenko case, the reviewing officer had no part in the decision to place him in isolation or treat him in a hostile way. The officer has explained to the Committee he was opposed to the tactic, for he

felt Nosenko had not been thoroughly debriefed and his leads had not been fully checked.

The security officer's 18-page critique was directed primarily at the report of the Soviet Russia Section that listed reasons for doubting Nosenko was a bonafide defector. The officer concluded that Nosenko's bonafides were still an open question, the resolution of which could only be based on further interviews.

The officer's recommendations were approved, and in late 1967 he was assigned to implement them. Three members of the Soviet Russia Section were designated to assist him for about four months.

The officer thereupon interrogated Nosenko from three to five days a week for nine months. FBI agents were furnished transcripts of the leads Nosenko provided.

In January 1968, the officer asked Nosenko to write down what he knew about Lee Harvey Oswald. A three-page statement was submitted, but the officer never questioned Nosenko about it, and at no time later did Nosenko provide the CIA with information about Oswald.

The security officer gradually came to the conclusion that Nosenko was supplying valid intelligence and that he was who he claimed to be, leading to the eventual conclusion that Nosenko was bonafide. The investigation ended in the summer of 1968.

NOSENKO'S THIRD POLYGRAPH TEST

On August 8, 1968, Nosenko was given a third polygraph test. Two of the questions related to information he had supplied about Oswald. Nosenko passed. The CIA, when asked by the Committee to comment on the third polygraph, now states: "This test is considered to be a valid test."

This Committee obtained an independent analysis of the three polygraph tests given Nosenko from Richard Arthur, president of Scientific Lie Detection, Inc. and a member of the American Polygraph Association. In his report, Mr. Arthur expressed the judgment that the second test, the one in which the examiner determined Nosenko was lying, was "the most valid and reliable of the three examinations administered to Nosenko." As for the two questions about Oswald in the third test, Mr. Arthur characterized the first as "atrocious" and the second as "very poor" for use in assessing the validity of Nosenko's responses.

In a report issued in October 1968, the security officer disputed each and every conclusion of the report of the Soviet Russia Section eight months earlier. He wrote:

Nosenko is identical to the person he claims to be. The claimed services of Nosenko in Navy intelligence (Naval reserve) are adequately substantiated. Nosenko was an officer of the American Embassy section of the KGB. Nosenko was an officer of the Seventh Department and was its Deputy Chief.

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Nosenko was Deputy Chief of the American Embassy section. Nosenko was Chief of the American-British Commonwealth section.

Nosenko was Deputy Chief of the Seventh Department in 1962.

INVESTIGATION BY THE CIA INTO NOSENKO'S STATEMENTS ABOUT OSWALD

The security officer's report, like the Soviet Russia Section report, paid little attention to the Oswald aspect of the Nosenko case. Neither attempted to analyze the statements made about Oswald. Out of a combined total of 730 pages of report, only 15 deal with the alleged assassin of President Kennedy.

The security officer did reach the conclusion, however, that Nosenko was not dispatched by the Soviet Government to give false information to U.S. officials about Oswald. He listed the reasons for his conclusion in his report:

Nosenko's first contact with the CIA was in June 1962, 17 months prior to the assassination.

Information provided by Nosenko was not sufficient in "nature, scope and content" to convince U.S. authorities of no Soviet involvement in the assassination.

Even if the KGB were involved in the assassination, the Soviets would assume that U.S. authorities would, in turn, believe only a few senior officers of the KGB would be aware of it, and Nosenko would not be one of them.

The Committee investigation developed some additional points regarding the CIA's attention to the Oswald aspect of the Nosenko case.

The CIA employee who interviewed Nosenko on July 3 and 27, 1964, told the Committee in a deposition he was not an expert on the KGB, nor had he any previous experience with KGB defectors. He was asked about his knowledge of Oswald, since it was in these interviews that the most detailed questions about the alleged assassin were asked. He replied:

"I cannot specifically recall having read any files pertaining to Lee Harvey Oswald. Certainly I had read and heard a lot about him in the newspapers, television, and radio. I may have had the opportunity to read some previous debriefings of Nosenko concerning Oswald, but I am not sure of that."

When asked if he ever spoke to Nosenko about Oswald, the security officer who wrote the 1968 report said:

"No. Well, all I have, you have there (Nosenko's three-page statement). I did a writeup on it. I didn't see that it seriously conflicted with what we had."

Q. And did you ever question him about what he wrote?

A. No, because I had no reason to disbelieve him.

Questioned further as to why he did not compare all of Nosenko's statements on Oswald, he replied: "I did not have all the information on the Oswald investigation. That was an FBI investigation."

Q. Well, was it available to you if you had asked the FBI for their reports of what Oswald had said to them?

A. It might, under certain circumstances, but in this case here, as far as our office was concerned, the Oswald matter was an FBI matter.

Contrasted to these statements is the testimony of former CIA Director Richard Helms to the Committee. Asked if "questions concerning Oswald (did) constitute a major facet of the overall inquiry that was being made of Nosenko," Helms replied, "Yes, no question about it."

THE WARREN COMMISSION AND NOSENKO

The Warren Commission received FBI and CIA reports on Nosenko and his statements about Oswald but chose, in its final report, not to refer to them. And while Nosenko expressed a willingness to testify before the Commission, he was not called as a witness.

Richard Helms told the Committee he met with Chief Justice Warren to emphasize the CIA had not been able to establish Nosenko's bonafides. Helms cautioned Warren of the "contingency that maybe the statements that he had made about Oswald's having no identification with the KGB were not accurate," and "the implication that, if he was not bonafide and had come for the purpose of covering up the tracks of Soviet intelligence, that this had implications which should be weighed on the scales."

J. Lee Rankin, General Counsel of the Warren Commission, told the Committee it was his recollection that no one from the Commission attempted to interview Nosenko about Oswald. He recalled further that the Commission decided it did not have experience to make a determination about Oswald's credibility. When asked whether he thought the knowledge of the Commission staff about Oswald might provide an advantage in questioning Nosenko, Rankin replied he didn't believe so.

"We didn't have enough information about Oswald at any time to be informed in depth."

Asked if he believed the CIA had special knowledge of Oswald, Rankin replied:

"I always had the impression that they knew quite a bit about the history and that they appeared to know about as much as we did about his life."

- Q. Were you under any impression as to whether the Agency was specifically trying to check out any of the information given to them by Nosenko about Oswald?
- A. I got the impression that they were doing that and were going to do it carefully.

NOSENKO'S STATUS SUBSEQUENT TO THE 1968 REPORT

The CIA has informed the House Select Committee on Assassinations of Nosenko's status subsequent to the 1968 report:

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Following acceptance of Nosenko's bonafides in late 1968, an arrangement was worked out whereby Nosenko was employed as an independent contractor for the CIA, effective March 1, 1969. His first contract called for him to be compensated at a rate of \$16,500 a year. As of 1978 he is receiving \$35,325 a year. In addition to regular, yearly compensation, in 1972 Nosenko was paid for the years 1964-1969 in the amount of \$25,000 a year less income tax. The total amount paid was \$87,052. He also received in varying increments from March 1964 through July 1973 amounts totaling \$50,000 to aid in his resettlement in the private economy.

To this day, Nosenko is consultant to the CIA and FBI on Soviet intelligence, and he lectures regularly on counterintelligence.

THE HSCA REVIEWS MATERIALS ON NOSENKO

On 1978, the Select Committee began its investigation of the Nosenko case. It was granted permission to read all documents, to interview principals in the case and to question Nosenko about his knowledge of Oswald.

The materials reviewed are as follows:

1. Nosenko's statements about Oswald to the FBI -- one dated February 27-28, 1964 and one dated March 3-4, 1964 (the Committee reviewed the FBI reports of the interviews only, since no tapes, transcripts, or notes presently exist).

2. Tapes and transcripts of statements by Nosenko to the CIA about Oswald on January 23 and 30, 1964 and July 3, 27, and 29, 1964.
3. The Soviet Russia Section report of February 1968.
4. The Security Officer's critique of the handling of the Nosenko case, dated June 19, 1967.
5. The security officer's report, dated October 1968.
6. A report written in 1976 by a retired CIA official who documented internal problems at the CIA over the Nosenko controversy.
7. All CIA files on Nosenko which dealt with Oswald or the Kennedy assassination.
8. All FBI files on Nosenko which dealt with Oswald or the Kennedy assassination.
9. The three-page statement on Oswald written by Nosenko in 1968.

Statements taken by the Committee are as follows:

1. The security officer was interviewed on two occasions, on the second of which he gave a 193-page sworn deposition.
2. The two KGB defectors who preceded Nosenko.
3. The Chief of the Soviet Russia Section from 1963 to 1968, who gave a sworn deposition.

4. The member of the Soviet Russia Section who interviewed Nosenko on July 3, 27 and 29, 1964 gave a sworn deposition.
5. An FBI agent who was present at all FBI interviews of Nosenko gave a sworn deposition.
6. Richard Helms, CIA Director from 1966 to 1973.
7. Yuri Nosenko, interviewed on three occasions, on the third of which he gave a sworn deposition; also heard in two executive session hearings of the Select Committee.

NOSENKO'S STATEMENTS TO THE COMMITTEE ABOUT OSWALD

On each of three occasions that the Committee questioned him, Nosenko recited the following story:

He first became aware of Oswald in the fall of 1959, when a subordinate named Rastrusin said an American tourist named Oswald desired to defect to the Soviet Union.

Nosenko asked what information the KGB had on Oswald and was told they had the questionnaire he had filled out when he entered the country, his visa application and reports from interpreters, intourist guides and hotel personnel. None of these sources, according to Nosenko, indicated Oswald could be of any interest to the KGB.

Based on this information, Nosenko, Rastrusin and their section chief reported to the Chief of the Seventh Department where it was decided to refuse Oswald permission to defect.

Nosenko says neither the American Department of the Second Chief Directorate, which would have jurisdiction over all Americans, or the First Chief Directorate, the intelligence department of the KGB, would have been interested in Oswald. Consequently, they were not notified of his request to defect.

A short time later, Nosenko was informed that Oswald, on being notified he could not stay in the Soviet Union, slashed his wrists in a suicide attempt. Nosenko and his associates were surprised by this, because Oswald had given no indication of being unstable.

Nosenko and his superiors concluded that Oswald should be independently examined by two psychiatrists. Nosenko had an opportunity to read both reports and said that both psychiatrists found Oswald to be "mentally unstable."

While in the hospital Oswald threatened suicide again, if he were not allowed to remain in the Soviet Union. The KGB, its position bolstered by the findings of the psychiatrists, "washed its hands" of the matter.

Nosenko does not know who made it, but a decision came down to allow Oswald to remain in Russia, though he wasn't

granted citizenship. A significant factor, says Nosenko, was the fear Oswald would kill himself, and the KGB would be accused of the murder of an American tourist at a time the Kremlin was trying to reduce East-West tensions.

Nosenko learned that Oswald was sent to Minsk to work in a radio factory. In addition to his salary, he was given a monthly stipend of 700 rubles, which Nosenko believes was paid by the Soviet Red Cross.

Oswald's KGB file was sent to Minsk with a letter to Minsk KGB to keep Oswald under surveillance but to have no contact with him. In addition to periodic physical surveillance in which Oswald was followed by KGB agents, his phone was tapped, his mail intercepted. Nosenko explained that the surveillance, which was to continue throughout Oswald's stay in Russia, was not unusual and was to insure Oswald was not a Western agent.

Nosenko says he was transferred soon after Oswald went to Minsk, and he lost contact with the case. Then, in 1963, he was reassigned to the Seventh Department of the Second Chief Directorate. There, he was informed that Oswald had applied at the Soviet Embassy in Mexico City for a visa to travel to Russia. Since Oswald had told embassy officials he had previously lived in Russia, a cable was sent to Moscow asking for guidance.

Nosenko says he personally read the cable.

Nosenko says he was not aware in 1963 that Oswald had married and departed Russia, but he recalled the case due to the unusual circumstances surrounding the decision to allow Oswald to remain in Russia in 1959.

Nosenko says he and his department chief advised that Oswald should not be allowed to return to the Soviet Union.

The next time Nosenko became involved in the Oswald case was immediately after the Kennedy assassination, when he learned that Oswald was the alleged assassin. On instructions, he telephoned KGB headquarters in Minsk, and having been assured there had been no contact with Oswald while he was in that city, Nosenko asked that Oswald's entire file be sent to him in Moscow.

Nosenko was present when the Oswald file arrived at KGB headquarters a few hours later, having been flown in by military aircraft. He recalls it was a large file -- seven or eight volumes -- and that he examined the first one, page by page. It is the critical one, he has told the Committee. If there had been any KGB recruitment of Oswald, evidence of it would have appeared in Volume One. The other volumes consisted mainly of surveillance reports and transcripts.

From his examination of the first volume, Nosenko claims, he can state unequivocally that Oswald was never recruited by the KGB. In fact, he insists, no KGB officer ever spoke with him.

According to Nosenko's story, the Oswald file was in his possession for about one-and-a-half hours.

Nosenko's last encounter with the Oswald case was a few weeks after the assassination. A friend told him the KGB had conducted an investigation of Oswald's activities in Minsk, in which it was learned he had occasionally gone hunting with members of a gun club. His fellow hunters had considered him such a bad shot, they often had to give him game.

COMMITTEE INVESTIGATION OF NOSENKO'S OSWALD STORY

Nosenko spoke to the House Select Committee on Assassinations on five occasions. During two of these sessions, staff members took notes. In the third, Nosenko gave a sworn deposition and on June 19 and 20, 1978, Nosenko testified before the Committee in executive session. There was no substantive variation in Nosenko's recounting of the facts.

Nosenko has always insisted that the KGB never had any contact with Oswald. He stated in both 1964 and 1978 that the KGB determined that Oswald was of no interest to them and did not even bother to interview him.

Q. And exactly why did no KGB officer ever speak to Oswald before they made the decision about whether to let him defect?

A. We didn't consider him an interesting target.

When asked if he knew of any other defector who was turned away because he was uninteresting, Nosenko answered, "No."

Nosenko said the KGB not only did not question Oswald when he asked to defect, it also did not interview him later, when it was decided he would be permitted to remain in Russia. At no time, Nosenko told the Committee, did the KGB talk to Oswald.

Q. Now, when it was determined that Oswald was going to be allowed to stay in the Soviet Union and live in Minsk, did any KGB officer speak to him at that time?

A. No, as far as my knowledge, nobody was speaking with him.

Q. Why didn't the KGB speak to him then?

A. KGB once said, we don't have interest. The same was reported to the government, must be by the chairman, that the KGB doesn't have interest. KGB didn't want to be involved.

According to Nosenko, the KGB would have been very interested in the fact that Oswald worked at the Atsugi Air Base in Japan from which the super secret U-2 spy planes took off and landed:

2. And in 1959, would the Soviet Union have been interested in someone who served as a radar operator on an air base where U-2's took off and landed?

A. Yes, sir, it would be very interested.

But Nosenko maintains that the KGB never spoke with Oswald, so that it didn't know that he had any connection with the U-2 flights.

The head of the CIA's Soviet Russia Section from 1963 to 1968 was asked by the Committee if he knew of comparable situations in which someone was not questioned, was just left alone, as Nosenko says Oswald was. He replied he did not know of any former Soviet intelligence officer or other knowledgeable source to whom they had spoken, who felt this would have been possible. "If someone did," he said, "I never heard of it."

In short, Nosenko's Oswald story is as follows:

The KGB, although very interested in the U-2, never learned anything about it from Oswald, because it didn't know he had knowledge of the aircraft. Why? Because Oswald was never questioned by the KGB, because the decision was made that Oswald was of no interest to Soviet intelligence.

When it was decided Oswald would be sent to Minsk, a letter accompanied his file ordering the Minsk KGB to place him under periodic physical surveillance and full-time technical surveillance, that is, phone tapping and letter opening.

Aside from wanting to monitor Oswald as a possible western agent, the KGB's reason for the surveillance was to keep track of the identities of his friends and acquaintances. Nosenko testified that the KGB would have known about Oswald's acquaintance with Marina soon after they met (on March 17, 1960, according to Oswald's diary).

Q. ...If he met Marina Oswald on March 17, how long would you estimate it would take before the KGB would know about her?

A. In the same March they would have quite a big batch of material on her.

Surveillance came up later in Nosenko's testimony, when he said the Oswald file, when it arrived in Moscow subsequent to the assassination, contained seven or eight thick volumes. Most of them consisted of information relating to the surveillance.

Q. You told us about the volumes in the file that were returned by military plane from Minsk.

A. Right.

Q. That and the other volumes, did it include all the records of the phone surveillance and periodic surveillance...

A. Included, that is why it is so thick file...

Nosenko testified that because the volumes in the file were so thick with surveillance reports, he only had time to read part of the first volume of the file.

Q. Did you have an opportunity to read the entire file at that time (when it arrived from Minsk)?

A. No sir.

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Q. How much of the file did you read?

A. It was simply looking, page by page, first part of the first volume.

Q. Did you go through any of the other volumes?

A. No sir.

Upon reading Nosenko's statements made to the FBI and CIA in 1964, less than a year after the assassination, it is clear that he did not inform them of the physical or technical surveillance which he described to the Committee.

In the FBI report detailing the interview with Nosenko in March of 1964, it states that Nosenko "opined that the only coverage of Oswald during his stay in Minsk consisted of periodic checks at his place of employment, inquiry of neighbors, associates and review of his mail."

Speaking to the CIA on July 3, 1964, Nosenko was specifically asked whether there was any physical or technical surveillance on Oswald and each time he replied "No."

In 1964, after stating to the CIA that there was no technical and physical surveillance of Oswald, Nosenko made the following statement upon being asked whether the KGB knew about Oswald's relationship with Marina before they announced that they were going to be married:

A. "They (KGB) didn't know she was a friend of Oswald until they applied for marriage. There was no surveillance on Oswald to show that he knew her."

Although in 1978 Nosenko testified that there were seven or eight thick volumes of documents in Oswald's file due to all the surveillance reports and that he could not read the entire file because of them, in 1964 he told the FBI agents that he "thoroughly reviewed Oswald's file." There was no mention of seven or eight thick volumes of surveillance documents.

During the course of the HSCA executive hearings at which Nosenko testified, he was questioned about his prior statements to the FBI and CIA. He was questioned about his 1964 statement to the FBI in which he spoke of monitoring of Oswald, such as review of his mail and periodic checks at his place of employment, but said nothing then about physical and technical surveillance that he had testified about before the Committee.

First, the statement was read to him without identifying where it came from. Nosenko was simply asked if he had ever made such a statement. He answered:

"Sir, I cannot tell you what I stated. I was for quite a big period of time, quite a few years, interrogated, by hours, and in different types of conditions, including hostile conditions... where they asked questions in such form which later my answer will be interpreted in any way, however they want to interrogate us...And I cannot tell you what I did say. I cannot remember dates. You must understand, it's hundreds of interrogations, hundreds."

At this point, the FBI report was introduced as an exhibit and shown to Nosenko. Upon reading it, he offered the following explanations as to why he did not tell the FBI about the physical and technical surveillance:

"Maybe I forget."

"Maybe they didn't put It in."

"It's not big deal...nothing important." (referring to the tapping of Oswald's phone).

Nosenko was then shown a 1964 statement he had made to the CIA in which he stated that the KGB did not know about Marina's acquaintance with Oswald until the couple applied for permission to marry, because "there was no surveillance on Oswald to show that he knew her." When asked if he ever said that, he responded that he did "not remember my questions and answers." When he was shown that the document which contained the statement was a CIA document, he said:

"As far as I remember, those conditions in which I was asked. Better ask where I was in this period of time, what conditions I was kept, and what type of interrogations were going on."

This, of course, referred to the period of April 4, 1964 to the end of 1967 when Nosenko was kept in solitary confinement by the CIA.

Nosenko was then referred to his testimony the preceding day, when he was questioned about his prior statements to the FBI and CIA:

Q. When you spoke to the FBI about Lee Harvey Oswald, did you always tell them the truth?

A. Yes, sir.

Q. Did you always tell them everything you knew?

A. Yes, sir.

Q. When you spoke to the CIA about Lee Harvey Oswald, did you tell them the truth?

A. The same, the same.

Q. Did you always tell them everything you knew?

A. Absolutely.

At this point, Nosenko stated that "it's some kind of here misunderstanding on both parts, that would be mine and interrogator." When he was asked whether it was an inaccurate transcript, he stated: "I consider many, many things are inaccurate."

He then suggested that the real problem was a failure to distinguish between a "thorough investigation" on the one hand and a "checkup" on the other and suggested that his answer was not incorrect because, "from this point of view I was answering the question." A few moments later, he said: "Sure I answered and this was the question..."

Nosenko testified to the HSCA in the 1978 hearings that after Oswald attempted to kill himself, the KGB assigned two psychiatrists to examine him independently. Nosenko stated that he personally read both reports and each concluded that Oswald was "mentally unstable." During the

course of reciting all he knew about Oswald, he interrupted his narrative at one point and said:

"Gentlemen, I am sorry, I did not mention one vitally important thing. When he was in hospital when he cut his wrist and when he announced that he will repeat the same if they will not allow him to stay, it was decided in the Seventh Department in the presence of me, Chief of Section, Chief of Department to check him through a psychiatrist. And was given command to Officer Rastrusin to arrange it that psychiatrist of the Botkin Hospital will check him and at the same time Rastrusin was ordered to arrange another psychiatrist from another hospital, independent and they will check him in different times, not together and each will write opinion separately. I have seen these both reports... both their opinions coincided that Oswald was mentally unstable."

When Nosenko was questioned by the HSCA as to why the Soviets would allow someone to remain in their country whom they knew to be mentally unstable, he responded with the following explanation:

A. ...He was allowed to stay because KGB and Soviet Government had come to the conclusion that if this person will kill himself, it will be reaction in newspapers which can in any way hurt the starting, the warming of Soviet-American relations.

Q. The Soviets were worried that he would kill himself in Soviet Union?

A. Right, if they would not allow him to stay.

Nosenko was then questioned as to other alternatives.

Q. Could the KGB have taken him and put him on the next plane out of Russia and thereby ended their whole problem with Lee Harvey Oswald?

A. It is a very sensitive question. He can jump out of car. If he decided, if he is mentally unstable, you don't know what he will do.

When the possibility of just taking Oswald to the American Embassy and leaving him there was raised, Nosenko stated: "It can be done, sure. It can be done, but it wasn't done."

When he was asked why the Soviets would allow a mentally unstable foreigner to marry a Soviet citizen, Nosenko responded:

"...in the Soviet Union there is by Decree of Presidium of Supreme Soviet USSR a law allowing marriage of Soviet citizens with foreign. A foreigner can marry a Soviet citizen by the law."

Nosenko added that the only time the KGB could interfere with such a marriage is if the Soviet citizen was working in a sensitive place, like a missile plant.

In statements Nosenko made to the CIA in 1964 with respect to these psychiatric evaluations of Oswald, Nosenko gave the following testimony:

Q. Did the KGB make a psychological assessment of Oswald?

A. No, nothing, but at the hospital it was also said he was not quite normal. The hospital didn't write that he was mad, just that he is not normal.

Q. Did the hospital authorities conduct any psychological testing?

A. I don't think so. There was no report like this.

Assuming that Nosenko was distinguishing between psychiatric and psychological reports, he never volunteered that he knew of any psychiatric reports or evaluations.

When questioned at the hearing on June 20, 1978 about this statement, Nosenko said that he did not "know whether it is correct or wrong." Nosenko was asked whether he ever made a statement like that; he said: "I do not remember statements for five years, interrogation." When he was told the statement came from a CIA report, he said: "Sir, I do not remember what I said to them; but I would like you to find out the conditions in which interrogations were done, how it was done, by what procedures, when two interrogators are seated...one playing part of bad guy and other good guy, and it started slapping then, not physically, but I mean psychologically and in conversation, turning question upside down, however they would like, then this leave, another one will start in softer way." Nosenko went on to state: "And I would not trust any of their documents in those periods of time." A few moments later he told the Committee that "my knowledge of language was very poor in '64. I didn't understand many questions..." Finally he stated: "One more thing -- if we are going into this, a number of interrogations, I was under drugs, and on me was used a number of drugs, and I know that, and

hallucinations..."

In evaluating Nosenko's objections to his statement given to the CIA in 1964, the HSCA considered the following:

1. A sworn deposition was taken from the CIA officer who interrogated Nosenko on the date in question (only one officer was present on that date). He stated that Nosenko was cooperative during the sessions, that Nosenko spoke coherently and essentially he understood quite well. He said that when Nosenko did not understand he would indicate this to the officer. He said that Nosenko never complained to him of being drugged and that Nosenko gave no indication during any of their conversations of being drugged.
2. The staff of the HSCA listened to a tape recording of the session, during which Nosenko was questioned about Oswald by the CIA in 1964.
3. The HSCA requested a full accounting by the CIA of any drugs given to Nosenko during the years he was in CIA custody. The CIA responded that no drugs of any kind were given to Nosenko in 1964, and in later years only drugs of a "therapeutic" nature were administered to him.
4. The HSCA analyzed the statements made to the FBI in February and March of 1964, prior to the commencement of the hostile interrogations to which Nosenko referred. Relevant was Nosenko's

statement which appeared in the FBI report of March 5, 1964:

The hospital record also included an evaluation that Oswald's attempted suicide indicated mental instability. Nosenko did not know whether this evaluation was based on a psychiatric examination or was merely an observation of the hospital medical staff.

When Nosenko testified before the HSCA in 1978, he stated that a KGB officer named Rastrusin first informed him of Oswald's request to defect:

"In the fall of 1959 to me approached senior case officer Major Gerogiy Ivanovich Rastrusin...He told me that an American tourist, Lee Harvey Oswald, applied to interpreter of Intourist with request to stay in the Soviet Union...and I, Chief of Section, Major Rastrusin...went to the Chief of Department, showed him materials..."

Nosenko stated that they decided that Oswald was of no interest to them and they would tell Oswald that he had to go back to the U. S. and apply for permission to stay in the Soviet Union. Nosenko referred to this as giving Oswald the "soft brush."

In March, 1964 Nosenko told the FBI agents who interviewed him that his first knowledge of the existence of Oswald arose in about October 1959. According to an FBI report, "... Kim Georgievich Krupnov, a case officer in his section, reported to him information which Krupnov had received (about Oswald)... On the basis of Nosenko's evaluation of Oswald, he (Nosenko) instructed Krupnov to advise Oswald...that Oswald would not

be permitted to remain in the USSR permanently and that he would have to depart at the expiration of his visa..."

Because Nosenko told the FBI in 1964 that he dealt with a case officer named Krupnov and told the Committee in 1973 that he dealt with a case officer named Rastrusin, he was asked at the hearing:

Q. But you recall that Krupnov was not present at that time?

A. Krupnov was not, because Krupnov appeared a little bit later in the Seventh Department.

Q. He wasn't in the department at that time?

A. He wasn't even in the Seventh Department. He wasn't working. He appeared in a month after it (referring to the decision not to allow Oswald to stay) took place; he was transferred in the Second Chief Directorate in the Seventh Department.

When asked at the hearing whether he ever told the FBI he made the decision himself and that Krupnov was the case officer, he said that he didn't remember but if he did then, it was wrong. Then he offered that "it can be that simply misunderstanding and, you see, this is not transcription from the tape."

In order to evaluate this statement as well as Nosenko's earlier statement to the effect that the FBI summary report failed to include all of his statements with regard to surveillance and psychiatric tests, the Committee took a sworn deposition from the FBI Special Agent, who was present at both the

February and March FBI interview sessions with Nosenko. When asked whether there were any language problems, the agent stated that this was not a problem. The questions, according to the FBI agent, were phrased in both Russian and English and, in his opinion, "there was no question about being misunderstood." He also described how the dual reports were written. The agents would speak with Nosenko and take notes. They then would return to their office, discuss the case, and later they would return to Nosenko and discuss with him any gaps or things they were not sure about. It was his belief that everything of importance was gone over with Nosenko and "discussed with him time and time again to make sure we had it accurate." When asked if Nosenko had an opportunity to see the finished report before it became official, he stated: "I think that he had. In order to eliminate any questions as far as accuracy, I think he saw a lot of stuff."

Thus, Nosenko first stated in 1964 that he alone made the decision not to allow Oswald to defect and that he was working with an officer named Krupnov. In 1973 before the HSCA, he testified that there was a meeting at which he was present when the decision was made and that the case officer was named Rastrusin.

Nosenko told the HSCA that he personally read a cable sent from the Soviet Embassy in Mexico City which asked for guidance in handling a visa application from Lee Harvey Oswald.

Q. You told us there was a cable that you read which was sent from the Mexico City Residentura to the First Chief Directorate; is that right?

A. Right.

Q. How long was the cable?

A. It was a half page.

When Nosenko spoke to the FBI in 1964, he told them that he "did not know how Mexico City advised Moscow of Oswald's application." When this statement was read to Nosenko at the hearing and before he was told where it came from, he testified that he did not remember if he had ever said it. When he learned it was an FBI statement, he said then: "Must be I said it, it's here in document," and at that point he was asked whether the FBI statement was given prior to the hostile interrogations which began April 4, 1964. He agreed this was correct and began explaining to the Committee the psychological turmoil that he went through when he came to the United States after defecting from the Soviet Union.

In 1964 when he spoke to the CIA, Nosenko told them that there was a cable, but he gave no indication that he personally read the cable.

Thus, in March of 1964 Nosenko told the FBI that he did not know how the Mexico City Consul advised Moscow of Oswald's application. In July of 1964, Nosenko told the CIA that there was a cable but did not indicate that he had

read it. In 1978 before the HSCA, Nosenko knew there was a cable, personally read it and remembered that it was about half a page long.

After questioning Nosenko on a number of other statements which he made to the FBI and CIA in 1964 and receiving similar responses to those described, the Committee returned to the earlier topics. Nosenko on numerous occasions had complained that the transcripts were inaccurate, that he was drugged, that he was not fairly questioned, etc. Therefore, the Committee prepared to play the actual tapes in which Nosenko made these statements and allow him to comment on them.

Nosenko, earlier in the hearing while explaining why he did not mention the physical and technical surveillance to the FBI and CIA in 1964, testified that if he had been asked, he would have said "yes."

Q. If they would have asked you, was there physical surveillance?

A. Yes, I will answer yes, it was.

Then Nosenko was asked if the question had been put to him: "Was he (Oswald) physically surveilled?" And had he ever answered: "No, there was none."

Nosenko was then shown a statement that indicated that he had indeed been asked that question and given that answer. But Nosenko testified: "I do not remember; it's not right, the answer."

At that time a tape recorder was brought out and the following was stated by the questioner: "I would ask that this tape, which is marked 3 July '64, reel number 66, be deemed marked for identification." A recess was requested to put the tape in the machine. At the conclusion of the recess, Nosenko refused to answer any question dealing with interviews done by the CIA prior to 1967. He stated that all statements prior to that time by the CIA were the result of hostile interrogations and that he was questioned illegally in violation of his constitutional rights. At that time, all questioning dealing with prior statements to the FBI and CIA was suspended by the Committee.

Mr. BLAKEY. I would like, Mr. Chairman, with your permission at this time to summarize the highlights of that report.

Chairman STOKES. Counsel may proceed.

Mr. BLAKEY. Nosenko has testified to the committee that he was born Yuri Ivanovich Nosenko in the town of Nikolayev in the Ukraine, October 30, 1927.

On leave in Moscow in 1953 he joined the MVD, later the KGB. In 1955 Nosenko was transferred to the seventh department of the second chief directorate, a department newly formed in the KGB to monitor tourists to the Soviet Union.

In July 1962 he was promoted to deputy chief of the seventh department, second chief directorate.

Nosenko first came to the attention of U.S. intelligence agencies in June 1962. He identified himself to the CIA and offered to sell information for 900 Swiss francs. He explained he needed the money to replace KGB funds he had spent on a drinking spree.

He has since said he did not really need the money but felt an offer simply to give away the information would be rejected, as it had been with similar offers by other Soviet agents.

On January 23, 1964, Nosenko was heard from again. Back in Geneva as an escort to a disarmament delegation, he informed the CIA this time he wished to defect, giving as his reason disillusionment with his government and doubt that he would be able to leave the USSR soon again. The CIA was surprised by his sudden decision to defect, but Nosenko was adamant.

On February 4 Nosenko revealed he had received a telegram ordering him to return to Moscow directly from Geneva. Nosenko later admitted, however, that the recall telegram was a fake. He had made up the story to get the CIA to agree to his defection without further delay.

By April 1964 Nosenko had been in the United States for nearly 2 months. Already top officials of the Soviet Russia and counterintelligence sections of the CIA had nagging doubts as to whether he was a bona fide defector.

Information Nosenko had given about Oswald, for one thing, aroused suspicions.

The chief of the Soviet Russia section had difficulty accepting the statements about Oswald, characterizing them as seemingly “* * * almost to have been tacked on to or have been added, as though it didn't seem to be part of the real body of the other things he had to say, many of which were true.”

Statements by Nosenko at the time of his contact with the CIA in 1964 revealing he had information about Lee Harvey Oswald led to his being questioned by the FBI upon arrival in the United States.

Nosenko told the FBI about his knowledge of Oswald and the fact that the KGB had no contact with him. The conclusion of the March report by the FBI reads as follows:

On March 4, 1964, Nosenko stated that he did not want any publicity in connection with this information but stated that he would be willing to testify to this information before the Presidential commission, provided such testimony is given in secret and absolutely no publicity is given, either to his appearance before the commission or to the information itself.

The report noted that on March 6 Nosenko inquired if the information he furnished on March 4 regarding Oswald had been given to the appropriate authorities. He was advised that this had been done.

On April 4, 1964, CIA officials decided to place Nosenko in isolation and to commence hostile interrogations.

First, he was subjected to a polygraph, one designed to insure a proper atmosphere for the hostile interrogations. The CIA polygrapher was instructed to inform Nosenko that he had lied, regardless of the actual outcome of the test.

In his report, the polygrapher wrote his true conclusion, which was that Nosenko had indeed lied. The official position now stated by the CIA is that the test was invalid or inconclusive.

The conditions of Nosenko's isolation have been described by the Rockefeller Commission as 'spartan.' Both Nosenko and the CIA were asked by the committee to describe them.

Nosenko says the room to which he was confined had a "metal bed attached to the floor," and "the only furniture in the room was a single bed and a light bulb."

The CIA states:

Nosenko received a regular diet of three meals a day. Periodically during this time his diet was modified to the extent that his portions of food were modest and restricted.

Nosenko states he "* * * was not given a toothbrush and toothpaste and food given to me was very poor. I did not have enough to eat, and was hungry all the time."

The CIA:

Nosenko did not have access to TV, radio or newspapers. He was provided with a limited number of books to read from April 1964 to November 1965, and from May 1967 to October 1967. His reading privileges were suspended from November 1965 to May 1967.

Nosenko: "I had no contact with anybody to talk. I could not read. I could not smoke."

The CIA states Nosenko was "under constant visual observation from April 1964 to October 1967," the end of the period of his isolation.

Nosenko:

I was watched day and night through TV camera * * * I was desperately wanting to read and once, when I was given toothpaste, I found in the toothpaste box a piece of paper with a description of the compound of this toothpaste. I was trying to read it under my blanket, but guards noticed it and again it was taken from me.

Both Nosenko and the CIA agree that conditions improved markedly beginning in the fall of 1967—the end of the period of isolation.

Nosenko was questioned about Lee Harvey Oswald on five occasions in 1964. Nosenko said as soon as President Kennedy's assassin was identified as a man who had lived in the Soviet Union, the KGB ordered that Oswald's file be flown to Moscow and reviewed to determine whether there had been any contact between him and Soviet intelligence. Nosenko said further he was assigned to review Oswald's file.

Based on that review as well as his earlier contacts with the case, he was able to report positively that Oswald had neither been recruited nor contacted by the KGB.

At the time of his second polygraph examination in October 1966, Nosenko was again asked about Oswald. The CIA examined him. The same one who administered the first test concluded again that Nosenko was lying, although the official agency position now is that the test was: "Invalid or inconclusive because the conditions and the circumstances under which it was administered are considered to have precluded an accurate appraisal of the results."

The Soviet Russia section of the CIA wrote a 900-page report based on its interrogations of Nosenko, though it was trimmed to 447 pages by the time it was submitted in February 1968. It came to the following conclusions:

Nosenko did not serve in the naval reserve as he had claimed.

He did not join the KGB at the time nor in the manner he described.

He did not serve in the American Embassy section of the KGB at the time he claimed. He was not a senior case officer or deputy chief of the seventh department, as he stated he had been.

He was neither deputy chief of the American Embassy section nor a supervisor in that section.

He was not chief of the American-British Commonwealth section.

He was not a deputy chief of the seventh department in 1962, as he had claimed.

High officials of the CIA, including Richard Helms, were aware of the Nosenko dilemma by the time the Soviet Russian section report had been drafted. In mid-1967, a career officer in the office of security was assigned to write a critique of the handling of Nosenko.

The security officer gradually came to the conclusion that Nosenko was supplying valid intelligence, and that he was who he claimed to be, leading to the eventual conclusion that Nosenko was bona fide.

The investigation ended in the summer of 1968. On August 8, 1968, Nosenko was given a third polygraph test. Two of the questions related to information he had supplied about Oswald. This time Nosenko passed. The CIA, when asked by the committee to comment on the third polygraph, now states: "This test is considered to be a valid test."

This committee obtained an independent analysis of the three polygraph tests given Nosenko from Richard Arther, president of the Scientific Lie Detection, Inc., and a member of the American Polygraph Association. In his report, Mr. Arther expresses the judgment that the second test, the one in which the examiner determined Nosenko was lying, was the most valid and reliable of the three examinations administered to Nosenko.

As for the two questions about Oswald in the third test, Mr. Arther characterized the first as "atrocious" and the second as "very poor" for use in assessing the validity of Nosenko's responses.

In a report issued in October 1968, the security officer disputed each and every conclusion of the report of the Soviet Russian section written only 8 months earlier.

The security officer report, like the Soviet Russian section report, paid little attention to the Oswald aspect of the Nosenko case. Neither attempted to analyze the statements made about Oswald.

Out of a combined total of 730 pages of the report, only 15 deal with the alleged assassin of President Kennedy.

The security officer did reach the conclusion, however, that Nosenko was not dispatched by the Soviet Government to give false information to the U.S. officials about Oswald.

The Warren Commission received FBI and CIA reports on Nosenko and his statements about Oswald but chose in its final report not to refer to them. And while Nosenko expressed a willingness to testify before the commission, as I previously noted, he was not called as a witness.

The CIA has informed the House Select Committee of Nosenko's status subsequent to the 1968 report as follows: Following the acceptance of Nosenko's bona fides in late 1968, an arrangement was worked out whereby Nosenko was employed as an independent contractor for the CIA effective March 1, 1969. His first contract called for him to be compensated at the rate of \$16,500 a year. As of 1978 he is receiving \$35,325 a year.

In addition to the record yearly compensation in 1972, Nosenko was paid for the years 1964 through 1969 in the amount of \$25,000 a year less income tax. The total amount paid was \$87,052. He also received in varying increments from March 1964 through July 1973 amounts totaling \$50,000 to aid in his resettlement in the private economy.

To this day, Nosenko is a consultant to the CIA and the FBI on Soviet intelligence, and he lectures regularly on counterintelligence.

In 1978, the select committee began its investigation of the Nosenko case. It was granted permission by the FBI and the CIA to read all documents, to interview principals in the case, and to question Nosenko himself about his knowledge of Oswald.

Nosenko spoke to the House committee on five occasions. During two of these sessions, staff members took notes. In the third, Nosenko gave a sworn deposition, and on July 19 and 20, 1978, Nosenko testified before the committee in executive session. There was no substantive variation in Nosenko's recounting of the facts. There have been, however, significant inconsistencies over the years in Nosenko's story.

Let me here note one, although others appear in the full summary. Nosenko has always insisted that the KGB never had any contact with Oswald. He stated in both 1964 and 1968 that the KGB determined that Oswald was of no interest to them and did not even bother to interview him.

Question: And exactly why did no KGB officer ever speak to Oswald before they made the decision about whether to let him defect?

Answer: We didn't consider him an interesting target.

When asked if he knew of any other defector who was turned away because he was uninteresting, Nosenko answered, no. Nosenko said the KGB not only did not question Oswald when he asked to defect, it also did not interview him later when it was decided he would be permitted to remain in Russia. At no time, Nosenko told the committee, did the KGB talk to Oswald.

Question: Now when it was determined that Oswald was going to be allowed to stay in the Soviet Union and live in Minsk, did any KGB officer speak to him at that time?

Answer: No. As far as my knowledge, nobody was speaking with him.

Question: Why didn't the KGB speak to him then?

Answer: KGB once said we don't have entrance. The same was reported to the Government. Must be by the chairman that the KGB doesn't have interest. The KGB didn't want to be involved.

According to Nosenko, the KGB would have been very interested in the fact that Oswald worked at the air base in Japan from which the super secret U-2 spy planes took off and landed.

Question: And in 1959, would the Soviet Union have been interested in someone who served as the radar operator on an air base where U-2's took off and landed?

Answer: Yes, sir. It would be very interesting.

But Nosenko maintains that the KGB never spoke with Oswald, so it didn't know that he had any connection with the U-2 flights.

The head of the CIA Soviet Russia section from 1963 to 1968 was asked by the committee if he knew of comparable situations in which someone was not questioned, was just left alone, as Nosenko says Oswald was. He replied that he did not know of any former Soviet intelligence officer or other knowledgeable source to whom they had spoken who felt that this would have been possible.

"If someone did" he said "I never heard of it."

In short, Nosenko's Oswald's story is as follows: The KGB, although very interested in the U-2, never learned anything about it from Oswald because it didn't know he had any knowledge of the aircraft. Why? Because Oswald was never questioned by the KGB because the decision was made that Oswald was of no interest to Soviet intelligence.

After questioning Nosenko on a number of other statements and their possible contradictions with prior statements which he made to the FBI and the CIA in 1964 and receiving similar response to the one I have just outlined, the committee in its May hearing returned to earlier topics. Nosenko on numerous occasions had complained that the transcripts he was being shown were inaccurate, that he had been drugged by the CIA during interrogation and that he was not fairly questioned, et cetera, et cetera, et cetera. Therefore the committee decided to play for Mr. Nosenko the actual tapes of the interrogation in which Nosenko made these statements and to allow him to comment on them.

At the time a tape recorder was brought out and the following was stated by the questioner: I would like to ask that this tape, which is marked "3 July 1964, Reel No. 66", be deemed marked for identification.

A recess was requested to put the tape in the machine. At the conclusion of the recess, Nosenko returned to the room and then refused to answer any questions dealing with interviews done by the CIA prior to 1967. He stated that all statements prior to that time by the CIA were the result of hostile interrogations, and that he was questioned illegally in violation of his constitutional rights.

The committee considered how to respond to Mr. Nosenko's objection, and after deliberation, it decided that all questions dealing

with prior statements to the FBI and the CIA would be suspended by the committee.

Mr. Chairman, that concludes my summary of the report. It is appropriate to note that a draft of the staff report, a summary of which was just read, was submitted to the CIA for declassification. Within 2 days, the CIA declassified the entire draft, requiring that only a few minor changes and the deletion of the names of agency personnel and sources.

The committee provided both the FBI and the CIA with copies of the report and asked the agencies if they wished to respond to the report at the public hearing to be held today.

The FBI informed the committee that no response would be submitted. The CIA has made available to the committee John Clement Hart as its official representative to state the agency's position on the committee's Nosenko report. Mr. Hart is a career agent with the CIA, having served approximately 24 years. He has held the position of chief of station in Korea, Thailand, Morocco, Vietnam, as well as several senior posts at CIA headquarters in Virginia.

Mr. Hart has considerable experience with Soviet intelligence and counterintelligence activities while serving in various capacities in the United States and abroad. He has written two extensive studies on Soviet defectors, one of which, dated 1976, dealt with the handling of Yuri Nosenko by the CIA.

Mr. Chairman, it would be appropriate at this time to call Mr. Hart.

Mr. PREYER. At this time, before we hear this witness, the Chair would like to take a few minutes recess until the other members have had an opportunity to return from the vote. I think it is important that they have the opportunity to hear this witness. So at this time, the Chair will take a recess not to last more than 5 minutes.

The committee stands in recess for 5 minutes.

[Recess.]

Chairman STOKES. The committee will come to order.

The committee calls Mr. John Hart.

Mr. Hart, would you please stand, raise your right hand and be sworn. Do you solemnly swear the testimony you will give before this committee will be the truth, the whole truth and nothing but the truth, so help you God?

Mr. HART. I do, sir.

Chairman STOKES. Thank you. You may be seated.

The Chair recognizes counsel Ken Klein.

Mr. KLEIN. Mr. Chairman, at this time I believe Mr. Hart would like to make a statement to the committee.

Chairman STOKES. You are recognized, sir.

TESTIMONY OF JOHN HART

Mr. HART. Thank you, Mr. Chairman, gentlemen. Before I begin my statement, I would like to make a prefatory remark on a technical aspect of what was said about me by the chief counsel, Mr. Blakey. I was not and never have been what is called a career agent with the CIA. I bring that up only because that term happens to have a technical meaning in the Agency. I was what you

would call an employee or an officer of the Agency. And I would like to have that made part of the record.

Chairman STOKES. The record may so show.

Mr. HART. Mr. Chairman, it has never been my custom to speak from a prepared text. I have tried, and I never succeeded. Therefore, what I have before me are a series of notes which were finished about 8 o'clock last night, based on guidance which I got at that time from Admiral Stansfield Turner, the Director of Central Intelligence.

It is my purpose to tell you as much as possible about the background of the Nosenko case with the idea not of addressing what have been called his bona fides, but what has been described as his credibility.

Now, I must say that I have difficulty in distinguishing between credibility and bona fides, but in any case, the testimony and the evidence which has been presented regarding Nosenko simply cannot be evaluated properly unless I give you the background which I am about to present.

Mr. DODD. Mr. Chairman, I would like to make a request at this point if I could. As I understood it, last week, the agreement and understanding was that we would prepare a report of our investigation, submit it to the Agency, to which the Agency would then respond in a like report. We were notified earlier this week that a detailed outline of the Agency's response would be forthcoming. Am I to assume that this detailed outline consisting of a single page, listing four subtitles, is the summary of Mr. Hart's presentation? That is, as far as I can determine, the full extent to which we have any response relating to Mr. Hart's testimony at this juncture.

What I would like to request at this point is that this committee take a 5- or 10-minute recess, and we have the benefit of examining your notes from which you are about to give your testimony, so that we could prepare ourselves for proper questioning of you, Mr. Hart.

Mr. Chairman, I would make that request.

Chairman STOKES. Does the witness care to respond?

Mr. HART. Mr. Chairman, I will do anything which will be of help to the committee. I want to state that I am not personally certain what was promised the committee. I was brought back on duty to be the spokesman for the agency. I spent my time preparing testimony which I am prepared to offer here. If it will be of assistance for the committee to see this in advance, I am perfectly happy to do so, if there is a way of doing that.

Chairman STOKES. Does the gentleman from Connecticut, Mr. Dodd, want to be heard further?

Mr. DODD. Yes, just to this extent, Mr. Chairman. It is not my intention to delay these proceedings any more than they have to be. I am not asking for a lot of time. If we could have just 5 or 10 minutes in which we might be able to make some Xerox copies of those notes, so that we could have the benefit of following you along in your testimony on the basis of that outline, it would be helpful I think in terms of the committee assessing the material and also preparing itself for the proper questions to be addressed to you at the conclusion of your statement. So I do it only for that

purpose, Mr. Chairman. It is not in any way designed to thwart the efforts of Mr. Hart or the Agency to make its presentation.

Chairman STOKES. Would the gentleman be agreeable to providing Mr. Hart the opportunity to proceed with his testimony, and then in the event that you deem it necessary to have additional time to review his notes, or to prepare an examination of him after his testimony, that the Chair would grant you that time at that time.

Mr. DODD. That would be fine, Mr. Chairman. I will agree to that.

Chairman STOKES. I thank the gentleman.

You may proceed, sir.

Mr. HART. Mr. Chairman, I also want to emphasize that in order to be of as much help as possible, I am perfectly willing to take questions as we go along. This is not a canned presentation. It may be easier for the members of the committee to ask questions as we go along, in which case I will do my best to answer them as we go along.

Chairman STOKES. I think the committee would prefer to have you make your presentation. Then after that the committee will then be recognized—members will be recognized individually for such questioning as they so desire.

Mr. FITHIAN. Mr. Chairman, may I ask the witness to move the microphone a little closer in some way or another. We are having some difficulty in hearing from this angle.

Mr. HART. Yes, sir. Is this all right?

Mr. Chairman, gentlemen, the effort in this presentation will be to point out some of the unusual factors in the Nosenko case which resulted in a series of cumulative misunderstandings. And I am hoping that once these misunderstandings are explained—and they were misunderstandings within the Agency for the most part—I am hoping that when these are explained, that many of the problems which are quite understandable, which the staff has had with the questions and answers from Mr. Nosenko, and also allegations concerning him, will be cleared up and go away.

I will endeavor to show that the handling of Nosenko by the Central Intelligence Agency was counterproductive from the time of the first contact with him in Geneva in 1962, and that it continued in a manner which was counterproductive until the jurisdiction over the case was transferred to the CIA Office of Security in late 1967, specifically in August of that year.

The manner in which the defector was handled, which I am going to outline, resulted in generating a large amount of misinformation and in creating difficulties, not only for an investigating body, such as yourself, but for people such as the Director of the Central Intelligence, Mr. Helms, who was not well informed in many cases as to what was actually happening. I do not mean to imply that he was told untruths. He was simply not given the total picture of what was going on.

Since Admiral Turner has become Director of Central Intelligence, he has been quite concerned about this case, and he specifically requested that I come back periodically to the Agency, from which I retired in 1972, and give presentations to senior officials of the Agency on the nature of the case. The complexity of the case is

such that to give a minimally adequate presentation to the first group which I lectured took me 4½ hours of continuous lecturing. However, I think that since the interests of this committee are more pinpointed than that group I have been lecturing, I can certainly do it in a shorter time.

Now, the study which I made was made from mid-June 1976 until late December 1976. It required the full-time efforts of myself and four assistants.

We collected from various parts of the Agency 10 4-drawer safes full of documents, and we had also access to documents which were in repositories in other parts of the Agency, and which we simply didn't have room to collect in our office.

In making this presentation, I will be somewhat hampered, but not to the point where I can't do the job properly, by the fact that this session is, of course, open to the public. Most of the documentation which we had, in fact I would say, almost without exception was heavily classified, and we pulled together pieces of documentation which no single person had ever seen before. So we put together the first full picture which has ever been had of this activity.

The first specific question which I want to address myself to is this case as a human phenomenon, because the human factors involved have a direct bearing on some of the contradictions which have appeared in the case.

And unfortunately the human factors were the last to be considered by the people who conducted this case between 1962 and 1967. Some of them were ridiculously simple things which you might have thought would come to their attention.

I am about to discuss a psychological profile which was made of Mr. Nosenko on June 24, 1964. This would have been available to any of the persons working on the case, but they—and it probably was seen by them, but they paid no attention to it.

Let me say by way of qualification for giving you this evidence that although I am not a psychologist, I have had considerable training in psychology and specifically in giving of intelligence tests. And I am about to talk to you about what is known as the Wexler adult intelligence scale, which was administered to Mr. Nosenko. The Wexler adult intelligence scale measures 10 elements of the—of a person's intelligence. Of the 10 elements shown here on the measure which I have here, and which I will be happy to make available to the committee staff, if you wish, it is shown that Mr. Nosenko's memory was the weakest aspect of his overall intelligence. His memory in terms of the weighted scale came out as a 7. Now, the mean would have been a 10. Thus he was at the time tested, he was registering a memory well below the normal level.

It is impossible to say what he would have scored under conditions which were more normal, because it must be taken into consideration that at the time he was—he was tested, he had been subjected to not only the stresses and strains of—involved in defecting, but also in some rather rough handling which he had received since his defection. However—you will see that if this man—man's memory was below the normal to be expected for a person of his intelligence, that any of the testimony which he gave in the course of various interrogations could be expected to be flawed simply by the human factor of memory alone.

Second, I want to point out that defection is in itself a major life trauma. It has a very serious effect, which I cannot testify to from the medical standpoint, but it is—it has both psychological and physical effects on people, and anybody who has, as I have, had to do, had considerable contact over the years with defectors, knows that a defector is usually a rather disturbed person, because he has made a break with his homeland, usually with family, with friends, with his whole way of life, and above all he is very uncertain as to what his future is going to be.

I have had defectors whom I personally took custody of turn to me and the first question they asked was, "When are you going to kill me?" In other words, defection is an upsetting experience, and you cannot expect of a man immediately after he has defected that he will always behave in a totally reasonable way.

Another circumstance which I want to bring up is the fact that the initial interrogations of Mr. Nosenko, which took place in Geneva in 1962, were handled under conditions which, while understandable, did not make for good interrogations. They did not make for good questioning.

Mr. Nosenko, as of the time he was being questioned in 1962, was still considered by the KGB to be a loyal member of that organization. He had considerable freedom because he actually did not have any duties in connection with the disarmament discussions. He was simply the security guardian of the delegates. He was the KGB's watchdog. And as such, he was able to move freely and in a manner of his own choice. He availed himself of this freedom to make contact with an American diplomat, who in turn turned him over to representatives of the CIA.

In making these contacts, which were recurrent, he each time was nervous that the local KGB element might for some reason be suspicious of him, and therefore he took about an hour and a half before each meeting in order to be sure that he was not being tailed. In his particular case, this countersurveillance measure consisted of visiting a number of bars, in each of which he had a drink. He had one scotch and soda in each of four or five bars. So by the time he got to the point where he was going to be questioned, he had had four or five drinks.

When he arrived on the spot where he was going to be questioned—this was a clandestine apartment, in the Agency's terms, Agency's jargon it is called a safe house, he was then offered further liquor. And he continued to drink throughout the interrogation.

In talking to Nosenko, and requestioning him a few days ago, I asked him to describe his condition during these meetings, and he said, "I must tell you honestly that at all these meetings I was snookered."

And I said, "You mean that you were drunk?"

"Yes, John," he said, "I was drunk." Therefore he was being interrogated about very important things while he was heavily under the influence of liquor. And he said to me that in some cases he exaggerated the importance of his activities, in some cases he really didn't know what he was doing, he was simply talking.

Now, I want to then tell you how the problems involved with this testimony, if you can call it such, given by Mr. Nosenko, was further worsened.

There were two people sent from Washington specifically to talk to Mr. Nosenko after he made the approach. One of them was a native-born American who had learned a certain amount of Russian academically, but did not speak it, write it or read it fluently. The other was an American citizen who spoke native Russian, but whose principal purpose was to be an interpreter.

There was a tape recorder on hand at these meetings. Sometimes it worked well, sometimes it did not work well. You must remember, I am sure, that back in the 1960's tape recorders were much less refined than they are now, and the ambient noise, straight noise, and so forth, interfered considerably.

However, records of these original meetings were not made from the tapes on the tape recorder. The records which were thought for a number of years to be transcripts were in fact made from notes made by the non-Russian speaker, what he understood as a result of interrogation by the Russian speaker, or what he got himself from his own knowledge of Russian. He made notes.

After the meetings, these notes were then used as the basis of purported transcripts, purported transcripts, which went unchallenged for a number of years.

When later in 1967 these transcripts were compared carefully with what was on the tape, it was shown that there were a number of discrepancies. These discrepancies were very important in the history of this case, because the discrepancies between what Mr. Nosenko really said and what was on the tapes gave rise to charges within the Agency that Mr. Nosenko was not what he purported to be.

But the important point is that in many cases what was being used against him as evidence of telling untruths was not in fact what he had said.

I will take simply one example to illustrate for you what happened.

Mr. Nosenko mentioned that he had attended what is called the Frunze Naval Preparatory School. Frunze was a general who was a hero of the Russian revolution and there seemed to be countless institutions of a military nature in the Soviet Union named after him. The most famous is the Frunze Military Academy which roughly compares to West Point.

Into the transcript was put the fact that Mr. Nosenko said he had graduated from the Frunze Military Academy. He never said this. He never said this at all, but it was held against him that he had said this. That is an example of the type of evidence which was used against him in assessing him.

Now I would like to say a few words about what, despite this, these difficulties—excuse me, Mr. Chairman. I would like to say a few words about the intelligence which Mr. Nosenko did produce during that time, despite the adverse circumstances surrounding the questioning.

In the first place, Mr. Nosenko was responsible for the discovery of a system of audio surveillance or microphones within the U.S. Embassy in Moscow which hitherto had been suspected but nobody

had had enough information on it to actually detect it. The information provided by Mr. Nosenko was sufficiently specific, so that when the necessary action was taken which involved wholesale tearing out of walls, tearing out of plumbing, tearing out of old-fashioned radiators, it was discovered that there was a system which totaled 52 microphones which were planted throughout the most sensitive parts of the American Embassy in Moscow. Forty-two of these microphones were still active at the time and were being used by the KGB to collect information continuously on what was going on in the American Embassy.

It has been said that this was not a significant contribution, that some of the people, whom I shall describe later, who have claimed that Mr. Nosenko was a dispatched Soviet agent sent to deceive the U.S. Government, said this was throwaway information.

I can only say, Mr. Chairman, that this is not entirely a matter of judgment on my part or on the part of those of us who have investigated this case. We do not believe that there is any reason to think that the Soviets would ever have given away that information simply to establish somebody in a position to mislead us. There are no adequate precedents to show that they would have done so.

Another case which was revealed to us in 1962, despite the, as I say, undesirable circumstances surrounding the questioning of Mr. Nosenko, had to do with a man, whom I in open session cannot identify, but he was a very high level Soviet KGB penetration in a very sensitive position in a Western European Government. He was, and on the basis of Mr. Nosenko's lead, arrested, tried, and convicted of espionage. There is no reason to believe that the Soviets would have given this information away. There is no precedent that we know of for the Soviets giving information of this sensitivity away.

Now I want to mention some further aspects of the difficulties which arose in the handling of the agent, some of the events which distorted this case. The first important communication which went back from Geneva after the two Washington emissaries had met with Mr. Nosenko was sent by a man who, in order to avoid the use of personal names, although the true name of this individual is certainly available to the staff, and if they have any questions I will be happy to answer, I am going to call him the deputy chief of the SB Division, Soviet Bloc Division, throughout my testimony. The deputy chief, who is the chief interrogator over there, sent back a telegram to Washington on June 11, 1962, in which he said "Subject" meaning Nosenko "has conclusively proved his bona fides. He has provided info of importance and sensitivity. Subject now completely cooperative. Willing to meet when abroad and will meet as often and as long as possible in his departure in Geneva from June 15."

On June 15 both Nosenko and the Deputy Chief SB departed from Geneva, Mr. Nosenko to return to Moscow and his KGB duties, the Deputy Chief SB to return to Washington.

In the course of my investigation, I asked the gentleman, who was for many years chief of the CIA counterintelligence staff, to describe to me what ensued after the arrival in Washington of DCSB, and I shall give you a brief quote which was recorded and

transcribed and which is held in our files. This is the chief of the counterintelligence staff of the CIA speaking:

We got the first message from Deputy Chief SB—that is the one that I have just previously quoted to you—on Nosenko from Geneva, and Deputy Chief SB was ordered back to Washington, and we had a big meeting here on Saturday morning, and Deputy Chief SB thought he had the biggest fish of his life. I mean he really did. And everything I heard from him, however, was in direct contrast from what we had heard from Mr. X.

I now come to the subject of another defector who, throughout this paper, I am going to call Mr. X, although the staff is well aware of his true identity.

Mr. X was a defector who had come, who had defected from the Soviet Union in late 1961. In the course of his dealings with the Central Intelligence Agency, he was diagnosed by a psychiatrist and separately by a clinical psychologist as a paranoid. And I am sure that everybody knows what a paranoid is. This man had delusions of grandeur. He was given to building up big, fantastic plots, and he eventually built up a plot, which I will have to go into in a little detail here, which centered around the idea that the KGB had vast resources which it was using to deceive not only the U.S. Government but other Western governments. This plot was masterminded by something called the KGB disinformation directorate, and this KGB disinformation directorate was able to deceive the West, as a whole, meaning the United States and the allied European countries, because of the fact that it had penetrations at high levels, both within the intelligence services of these countries, including our own, but also in high places in the governments of the various countries, in the nonintelligence parts of the governments.

Mr. X's story did not come out immediately in one piece. It was elaborated over the years, and for all I know, it may be still in the process of exaggeration, exaggeration and elaboration.

One aspect of Mr. X's character was that he was rather jealous of other Soviet defectors.

Now he did personally know Nosenko, and when Nosenko came out, he did give evidence confirming that Nosenko had had certain jobs, which was in agreement with what Nosenko told us he had done. At later phases of the handling of Mr. X, he changed his story a number of times. I am not an expert on the Mr. X case, and therefore I cannot give you all the details. It is a very lengthy case, but he did go through a number of stages in which he changed his stories.

Mr. X was a problem for the Central Intelligence Agency and for anybody else who dealt with him, because he basically insisted that he wanted to deal only with the President of United States. He did not want to deal with people at a lower rank. But he had a substantial influence on the case because he came to be accepted as almost a member of the Central Intelligence Agency, in terms of the handling of the Nosenko case. He was in due time given access to a voluminous amount of information relating to matters of counterintelligence interest.

In the case of Nosenko, he was given access to all the debriefings of Nosenko. He was given access to the tapes themselves. He was consulted as to Nosenko's bona fides. He was allowed to think up

questions which were to be asked Nosenko. He participated almost as if he were a U.S. citizen, with a status similar to my own in the organization.

He did this, however, without the knowledge at that time of Nosenko. He was kept behind the scenes, but he was masterminding the examinations in many ways.

The final point that I suppose I might make about Mr. X, which will give it, give you some evidence of his peculiar point of view, was that it was one of his contentions that the schism between the Soviet Union and China, Communist China, was simply a KGB disinformation ruse, designed to confuse the West. He offered this theory quite seriously, and in some limited quarters within the agency, it came to be taken seriously.

Now Mr. X said, in regard to Nosenko, that Nosenko had been sent out specifically to remedy the damage produced by Mr. X who defected some time previously and had given us information which he thought of great value. In point of fact, quantitatively and qualitatively, the information given by Mr. X was much smaller than that given by Nosenko. But I will read you an excerpt from what Mr. X had to say regarding Nosenko because it bears on the manner in which Nosenko was cheating—was treated.

Now this is a report written, not a direct quote, a report written on a conversation with Mr. X.

Mr. X felt in general that there were indeed serious signs of disinformation in this affair. He felt that such a disinformation operation to discredit him was a likelihood. A KGB officer could be permitted to tell everything he knew now—that is another KGB officer—everything he knew now, if he worked in the same general field as Mr. X.

The purpose of Nosenko's coming out, he thought, would be to contradict what Mr. X had said, and also possibly to set Mr. X up for kidnaping, also to divert our attention from investigations of Mr. X's leads by throwing up false scents, and to protect remaining Soviet sources.

Now Mr. X's views were immediately taken to be the definitive views on Nosenko, and from that standpoint, from that point on, the treatment of Mr. Nosenko was never, until 1967, devoted to learning what Mr. X had to say. It was devoted to "breaking"—excuse me, sir, I misspoke. It was never devoted to finding out what Mr. Nosenko said. The Agency's activity was devoted to breaking Nosenko, who was presumed, on the basis of the supposed evidence given by Mr. X, that Nosenko was a "dispatched KGB agent" sent to mislead the United States.

It is with this in mind that we have to approach everything that happened from 1962, after the first contact with Nosenko terminated, and the time that Nosenko was turned over to the CIA Office of Security for reinvestigation.

The polygraphs themselves must be evaluated in the light of their use, not to get at truth, because they were not used as an instrument of getting at truth, because they were used as an instrument of intimidation of one sort or another, in one way or another.

Now again on the handling of Mr. Nosenko, the belief among the small group of people running the Nosenko case, a very limited

group of people, was that he was part of a plot of the type outlined by Mr. X, which was so horrendous that therefore not many people could be made privy to this investigation.

One of the reasons for that, even within the Agency, was that Mr. X had alleged that the Agency must be penetrated by the KGB at a high level, and therefore you had to limit what Nosenko and Mr. X said to a very small number of people who were thought not to be penetrations, a very small trusted group.

The secrecy surrounding this case, I can illustrate to you from the following personal experience.

In 1968 I came back, well, after this case had been resolved, I came back from Vietnam and was put in charge of the European Division of the Directorate of Operations of the Agency. Under my supervision at that time, there were two senior officers, one a GS-18 and one a GS-16, who had been two of the three persons who were in charge of the Nosenko and Mr. X cases. I was never told of their participation in this case. I was never told that their work on the case had been discredited and had caused them to be transferred out of headquarters to foreign assignments.

Therefore even though I was their supervisor, I was not permitted to know of this important part of their recent past and of their performance.

In 1964, Mr. Chairman, Nosenko came back out from the Soviet Union, again to Geneva, again in the same capacity as the KGB security officer attached to the Soviet mission to the disarmament conferences. He came out with the intention, a firm intention, of not going back. The Agency in the meantime had built up an elaborate case against him, a case built up under the aegis of the chief of the CI staff, the chief of the Soviet Bloc Division, and the deputy chief of the Soviet Bloc Division. Again it was the man I am referring to as the deputy chief of the Soviet Bloc Division, although he did not as yet hold that rank, who came out to Geneva to make the recontact with Nosenko.

The question of just how to deal with Nosenko had been carefully examined, and it was decided that although the Agency was intensely suspicious of him, perhaps more than suspicious, they had concluded that he was being dispatched to mislead the U.S. Government. Nevertheless we must not tip our hand. We must not let Nosenko know that we suspected him, because Nosenko would then report back to his superiors that we knew what they were up to. Thus Nosenko was treated with the maximum of duplicity.

As an illustration, I want to read then an excerpt from a transcript, and this is an accurate excerpt from a transcript. I want to read an excerpt of a conversation which ensued on the 30th of January 1964 between the deputy chief SB and Nosenko.

Nosenko, who, by the way, was worried about his future. He knew he had some kind of a relationship with us, but he was interested now in breaking finally with the Soviet Union and coming to the West, and he wanted asylum in United States, and he wanted to be sure that he was able to earn his living. He wasn't asking to be in charge of the Government. He wanted an opportunity to earn his living.

Nosenko said:

The only thing I want to know, and I ask this question, what should I expect in the future?

The Deputy Chief SB replied:

The following awaits. As I presented it, you wanted to come to the United States to have some job, some chance for future life which gives you security, and if possible, the opportunity to work in this field which you know; is that correct?

Nosenko: Absolutely.

Deputy chief SB: The Director has said yes, flatly, absolutely yes, in fact, I would say enthusiastic. That is the only word to describe it. We talked about it, and since this was a business discussion, I will repeat all of it. The next thing will be some details that we spoke about. We talked about the means by which you could have a solid career with a certain personal independence. Because of the very great assistance you have been to us already, and because of this desire to give you a backing, they will give you a little additional personal security. We want to give you an account of your own, a sum at the beginning of just plain \$50,000, and from there on, as a working contract, \$25,000 a year. But in addition, because of the case."

Which I have said I cannot otherwise identify, in which a KGB penetration had been arrested on the basis of Nosenko's information:

But, in addition, because of this case, which would have been impossible without your information, we are going to add at least \$10,000 to this initial sum.

So he was being paid, he was being assured of a bonus of \$10,000 for his excellent performance in connection with one case. That commitment was subsequently reiterated in almost those exact words on a later occasion when he was on his way back to the United States.

Once Nosenko arrived in the United States, there were a couple of problems. The two agencies were interrogating him, although he was in the actual custody of the Central Intelligence Agency. The FBI did not at that time at least share the doubts about Nosenko which the Agency had. They regarded him as a bona fide defector, and considered that his information was valid and useful. It shows in the record that at a later date Mr. Hoover expressed himself as believing that Nosenko was a valid defector but that Mr. X was a provocateur. So there was a direct conflict between the two agencies on this subject.

The position of the Central Intelligence Agency was that it faced a dilemma as to how to keep Nosenko sufficiently isolated so that he could not communicate with his supposed "KGB controllers," who were still masterminding his activities, while at the same time keeping him sufficiently cooperative to be debriefed.

The dilemma was compounded by the fact that while the FBI was primarily interested in ascertaining from Nosenko valid information which they presumed him to have, the interest of the Agency was not particularly in obtaining valid information because the Agency assumed that he would not be giving valid information except incidental to establishing falsely his bona fides.

Therefore, the Agency thought, the Agency effort was devoted to a plan to break him. "Break him" meant getting him to confess to what was presumed by the Agency to be the case that he was a dispatched KGB agent still functioning under KGB control, although in American hands.

On February 12, 1964, Nosenko was lodged in a CIA controlled house under constant guard, while being treated in a friendly fashion. Yet, he was, during all this time, still worried about his

status because there was a certain unreality, I would say, about his situation.

He had been assured that he was going to be granted a salary and that he was going to have a job and so forth. But he was kept very isolated, he was under guard at all times, and he was being interrogated periodically by the FBI and by the Agency.

His fear, as he recounts it now, is that he was worried about being milked of information, after which he might be discarded. He didn't know what would happen if he were discarded because he still had a very active fear, as he does to this day, that the KGB would like either to kidnap him or kill him.

He nevertheless remained tractable and cooperative for the first few days, although in the succeeding weeks he became more difficult. He had a serious personality crisis, which led to heavy drinking, and he got to the point where he was starting out the day with a drink and was continuing to drink more or less continually throughout the 24 hours, except for those times when he was asleep.

This, once again, has a tendency to vitiate some of the testimony. But I would say that one can certainly say that there is no particular reason to believe that what he was saying wasn't in good faith, despite the fact that it may have been inaccurate because of the amount of alcohol.

An interesting point is that at about this time, while Nosenko was still in this friendly confinement, a Soviet defector who had been with us for some time and who was doing research for us noticed that there were serious discrepancies between the so-called transcripts of the 1962 meetings and the tapes from which these transcripts had allegedly been made.

This particular Soviet defector who is very thorough, very conscientious, wrote a memorandum to the deputy chief "SB" saying that these transcripts do not resemble in many respects the tapes—and here I am afraid I am speaking from memory, but I think my memory is accurate—I think he named 150 discrepancies which he had found in a cursory review of the tapes, and he offered to make a full report of the other discrepancies which might exist.

Insofar as the record shows—and we examined the record quite carefully to see if there was any reply—we cannot find anything which indicates that the defector was asked to make a full examination and a full report of the discrepancies.

I cannot account for this, but in any case, it can be said with certainty that the responsible people who—or at least one of the responsible people running this operation was in a position to know that the transcripts were not accurate and did not take the trouble to ask for a more accurate version.

The next step, since the interrogations conducted by the CIA, which as I say were designed not to ascertain information so much as they were to pin on Nosenko the label of a KGB agent acting to deceive us, since nothing had been proved in the friendly confinement, the people running the operation determined that the next step would be a confinement—much more spartan was the word used in the Rockefeller report—a much more spartan confinement was appropriate and a so-called hostile interrogation.

Therefore, they examined the ways in which this might be conducted and they decided to apply to Nosenko's handling approximately the conditions under which an American citizen, Prof. Frederick Barghorn, had been confined for a period of time in Moscow in 1963.

You may recall that Professor Barghorn happened, fortunately for him, to be a personal friend of President Kennedy and President Kennedy made a personal appeal to Prime Minister Khrushchev and—Secretary General Khrushchev.

On the basis of President Kennedy's appeal, Professor Barghorn was released by the KGB and came back to this country and had been extensively debriefed on how he had been treated.

Therefore, it was decided that Nosenko would be given the same treatment.

What was to happen was that he was to be given the first of the three polygraph tests that he had in the course of this period during which he was under suspicion, and after the polygraph test, he would be told that he had failed the polygraph test and then would "be arrested"—I put that in quotes—they would act as if he were being arrested. I will come back to the matter of the polygraphs later.

He would then be taken to an area where he would be treated as if he were being put in prison. He would be forced to strip, put on prison clothes, and so on.

The effort would be to put him at a psychological disadvantage, to shake his confidence, to make him fearful. The guards at the house were given instructions that there must be no physical mistreatment of him, but that they were not to talk to him, they were not to smile at him, they were to treat him very impersonally.

The original plan for the so-called cell in which he was to be confined did not envisage even the existence of any heat in the room. It envisaged that one window would be boarded up and that there would be one 60-watt bulb burning all night.

As had been the case of Professor Barghorn when imprisoned in Moscow, he would be forced to arise at 6 in the morning and required to go to bed at 10 at night.

The food which he was to receive was described as follows: breakfast—weak tea, no sugar, porridge; dinner—watery soup, macaroni or porridge, bread, weak tea; supper—weak tea and porridge.

Now, this diet, as a result of the intervention of a medical doctor, was varied and improved. But at first this is what was planned. It never did become very good. But at any rate, it wasn't as meager as I have just described.

The man was under 24-hour visual surveillance through the door. He was not allowed to lie down on his couch during the day after he had gotten up at 6 in the morning. He was allowed to sit down on the bed or sit down in the chair.

Although originally there had been a plan for reading material, very meager amount of reading material, he was at first actually not given reading material.

There was a definite effort to deprive him of any distractions. There was in the house a TV which the guards watched, but the guards were provided with earphones so that he would not hear

the sounds of the TV, and he was not to hear anybody speak except on those occasions when the interrogators came to interrogate him.

Now, I might also add that originally he was not to have the benefit of toilet facilities. There was to be a slop pail which he was to empty once a day. But that, I am happy to say, was changed. Once again, because the Office of Security refused—which was in charge of the house—refused to some of the more extreme measures which the operational people had produced.

Now we come to the polygraph, which as I have mentioned is the first of the occasions on which Mr. Nosenko was polygraphed. This polygraph was administered on the 4th of April 1964 from 1045 to 1515 hours.

As I think was mentioned by Professor Blakey, the operator was told to tell him at the end that he had failed the polygraph.

I would like, if I may, to pause here for just a minute to say something about the polygraph, and the way that it is used properly—I do not wish to tell you gentlemen things which you already know, but I simply want to establish the way that the polygraph is normally used by the Central Intelligence Agency and has always been used by people who use it responsibly.

In the first place, the polygraph, as you know, is not a lie detector. It doesn't detect lies. It simply detects physiological changes, changes of heartbeat, changes of your respiration rate, changes in something known as galvanic skin reaction, which is electrical conductivity, which is measured by a sensor placed on your finger.

These changes are measured against a base line, and the base line is obtained by asking you rather ordinary questions, like what is your name, which presumably will not cause you anxiety, unless you are faking your name. But you ask a lot of questions and you get a base line.

It is certainly not desirable to raise the tension of the person who is going to be polygraphed if you expect to use the polygraph as an aid to getting at the truth because the tension becomes unpredictable, and then you get tracings on the tape which is run which may seem to indicate that the person is telling a falsehood, but they may simply be due to the extreme tension which you are under.

Now, the important things about this particular first polygraph, which also had a considerable influence on the later conduct of the case, was that not only was Mr. Nosenko told after the fact that he had failed the polygraph, but before the fact, a rather unusual thing—I have never heard of it being done before—was done.

An artifact which was described to him as an electroencephalograph was attached to him and he was told that in addition to all the other sensors, we were going to read his brain-waves.

Now, there was no purpose for this except as the documentary evidence shows—except to raise his tension. He was made to fear this polygraph in every way he could.

The first polygraph has been adjudged invalid because of the manner in which it was conducted. The use of these extra strains and stresses might be used in a hostile interrogation if you didn't

expect to use the results of the polygraph to support what the man eventually said.

But you cannot reconcile using the polygraph in this way if you expect to use the tracings to indicate whether or not the person is lying.

A point which is important here is, however, that when the results of this polygraph were reported upwards through the chain of command, there was no indication that there had been any special circumstances surrounding the giving of a polygraph.

On the contrary, the report up the chain of command from chief SB simply said that the polygraph had obtained significant reactions.

It was after this polygraph that Mr. X was brought deliberately into the case to assist the interrogators to examine the answers which Nosenko gave, and to suggest further questions.

As I have mentioned, he was given voluminous material relating to the case to analyze.

Mr. Nosenko then remained in solitary confinement, under constant visual observation, until, if my memory serves me correctly, August 1967. There was a change of the location, but that bore no particular significance because he was treated approximately the same way in both locations.

Insofar as I could tell from reading a vast number of documents, the expectation and the assumption on the part of the top level leadership of the Agency was that Mr. Nosenko was being interrogated, questioned, whatever you wish to call it, during the entire time that he was incarcerated.

Mr. DODD. Mr. Hart, could you please speak up a little bit. You are fading on me.

Mr. HART. Insofar as I can tell, the assumption among the top leadership of the Agency was that during this period of incarceration Mr. Nosenko was being questioned or interrogated. That is flatly contrary to the facts because although he was incarcerated for 1,277 days, on only 292 days was he in part questioned.

We do not know—it is difficult to tell just how many hours of questioning there took place on these 292 days, when he actually was questioned. The rest of the time, which is 77 percent of the total time of incarceration, he was left entirely unoccupied and was not being questioned.

There was, in other words, no effort being made to get at more information which he might have.

The justification for not dealing with Mr. Nosenko was that the lack of any contact would put additional pressure on him, pressure to confess that he was a dispatched KGB agent.

This was eventually surfaced in a memorandum which went to the Director, and it was stated that the interval in isolation will be extremely valuable in terms of allowing subject to ponder on the complete failure of his recent gambits.

His gambits, which may or may not have been gambits, included a period when he was hallucinating while incarcerated and totally inactive.

The eventual conclusion of the medical officer who examined him was that he was feigning these hallucinations, but that was simply one medical officer's opinion.

I am prepared to suggest to the staff, if they wish to look at it, they examine some evidence which has been scientifically collected specifically by the Russians which show that long periods of isolation do lead to hallucination.

So, it may have been well that in addition to the other problems which we face in connection with this, or have faced in connection with Mr. Nosenko, that there was a period when he was hallucinating.

Now, I am not here speaking as a technical expert on this subject, but I have examined some technical works on the subject of the effects which long confinement of this sort could have.

I will have to pause here for a minute to get a date, if I may. Well, I will get the date for you in just a minute.

But Mr. Helms, the then Director, became very impatient with the large amount of time spent on this case and the failure to come to a conclusion as to the credibility of this man.

Specifically, this was on August 23, 1966. He set a limit of 60 days for the people who were handling this case to wind it up.

This resulted in a period of frenetic activity because the people handling the case felt that it was impossible to prove the man's guilt and they couldn't conceive of any way of getting at the truth unless some additional measures were taken.

In September 1966 a proposal which they had made that the man be interrogated, Mr. Nosenko be interrogated under the influence of sodium amytal, which was believed to be a drug which lowered the defenses of a subject and made him more vulnerable to questioning, was turned down by the Director, who refused to permit interrogations using drugs.

The staff handling the case therefore took refuge once again on the polygraph and they submitted Mr. Nosenko to a second series of polygraphs, which continued from October 19 through October 28, 1966.

These are the series of polygraphs which we have been told by Mr. Arther of Scientific Lie Detection are the most valid of the polygraphs which were given the man.

We take serious exception to the statement, the judgment given by Mr. Arther that these were valid polygraphs for a number of reasons.

We take serious exceptions to them partly because we have no understanding of the basis for Mr. Arther's conclusions, and we have doubts that Mr. Arther examined all the relevant data in connection with making this judgment.

When Mr. Arther visited the Central Intelligence Agency in connection with evaluating the polygraphs, he did not, as I understand it, evaluate the 1962 polygraph, only the series of polygraph examinations made in 1966.

He was offered the Agency's own 1966 evaluations of the examinations as part of providing him with all the data available. He declined to see the Agency's evaluations.

Since the October 18 test was the most significant because it was the one which had to do with the Oswald matters——

Chairman STOKES. I wonder if the gentleman would suspend for just a minute. It is about 1:30 now. I wonder if you could give the committee some indication as to about how much longer you think

you will go, and then perhaps we can judge whether this is an appropriate time for us to take a recess.

Mr. HART. I can wind this up, Mr. Chairman, in about 15 minutes.

Chairman STOKES. You may proceed then, sir.

Mr. HART. As I was saying, the Agency attempted to give the examiner, Mr. Arther, as much data as they could, in order to make a meaningful analysis. However, he did not accept all the data which they were offered.

The examiners at the Agency feel that it would be very hard for anybody, any expert, themselves or anybody else, to make an evaluation of these, of the tapes of this series of polygraphs without knowing the surrounding conditions, and there were a number of serious conditions which would interfere with a satisfactory polygraph.

For one thing, the times involved in this series of polygraphs were excessive, were very excessive. It is a principle of polygraphing, on which most polygraphers agree, that if you keep the person on the machine for too long, the results, the effectiveness of the polygraph declines.

In the case of this series, on the first day the man was kept on it, on the polygraph machine, for 2 hours. On the second day he was kept on the polygraph for a total of almost 7 hours, and for comparable periods of time leading to a total of 28 hours and 29 minutes of time on the machine. In addition to that, it was later discovered that while he was actually not being interrogated, he was also left strapped on the chair where he was sitting so that he could not move. And so while lunchbreaks were being taken, he actually was not being interrogated but he was still strapped to the chair.

Now these lunchbreaks, or whatever they were, perhaps they were also used as time for further preparation of questions. But at any rate, the record shows that they lasted, for example, on October 20, from 12:15 to 3:30, and on October 21, from 12:45 to 4:45. That is 4 hours that the man was left in the chair with no rest.

In addition to that, the operator was guilty of some provocative remarks. He told, before the polygraph examination, one of the polygraph examinations began, he told Nosenko that he was a fanatic, and that there was no evidence to support his legend, and your future is now zero.

The operator also on another occasion preceded his interrogation by saying that the subject didn't have any hope, there would be no hope for subject, and he might go crazy, to which Nosenko replied that he never would go crazy. Thus the combination of an antagonistic operator who, I might add, was by now not operating under the auspices of the CIA Office of Security, but who was operating under the aegis of the chief of SB and the deputy chief of SB, the fact that the man was kept for extraordinary lengths of time strapped into the chair, all of these add up, in the estimation of the CIA examiners who have gone over this series of tests, to an invalid polygraph.

Now in the handwriting of the deputy chief SB, who was a day-to-day supervisor of the activity which I have been describing, it is—there is an admission which implies fairly clearly that there was no intention that this 1966 series of polygraphs would be valid.

I read here a direct quotation which exists in writing, and most of it is in the handwriting of the deputy chief of SB. Speaking of the aims to be achieved by the 1966 polygraph examinations, he writes:

To gain more insight into points of detail which we could use in fabricating an ostensible Nosenko confession, insofar as we could make one consistent and believable even to the Soviets, a confession would be useful in any eventual disposal of Nosenko.

Now he doesn't clarify what he means in this document by "disposal," but it is apparent that——

Mr. SAWYER. Excuse me.

Did you use the term "eventual disposal of him"?

Mr. HART. I used the term "the eventual disposal," yes, sir.

Mr. SAWYER. Thank you.

Mr. HART. I want finally to address myself very briefly to the two reports which were turned out, one of which, both of which have been described by Professor Blakey. One was actually about 900 pages, but it came to be called the thousand paper simply because of its extraordinary size.

That was originally, it had originally been hoped that that would be the official CIA write-up on the subject, but there was no agreement between the CI staff and the SB Division on this paper, in part because the SB paper had an implication in it that Mr. X, of whom I have previously talked, had contradicted himself and was not totally reliable. I read here an excerpt in which the chief of the SB Division is talking: "Chief CI said that he did not see how we could submit a final report to the bureau" meaning the FBI "if it contained suggestions that Mr. X had lied to us about certain aspects of Nosenko's past. He recalled that the Director of the FBI had stated that in his opinion Mr. X himself was a provocateur and a penetration agent."

Thus, what happened was that a long negotiation took place during which a briefer paper, which as I remember is 446 pages long, was eventually produced, and this became the agreed document, agreed between the CIA staff, I mean the CIA-CI staff and the SB Division, until such time as Mr. Helms, exasperated by the long delays on this case and dissatisfied with the results, took the matter out of the hands of both the SB Division and the CI staff, turned the matter over to his Director, Admiral Rufus Taylor, and Admiral Taylor brought in the Office of Security to try to resolve the case.

I have nothing more to say about the resolution of that case because it has been adequately covered by Professor Blakey's presentation this morning.

That is all I have to say in this presentation, Mr. Chairman.
Chairman STOKES. Thank you, sir.

I think this is probably an appropriate place for us, then, to take a recess.

The committee will recess until 2:30 this afternoon, at which time we will resume questioning of the witness.

[Whereupon, at 1:43 p.m., the select committee was recessed, to reconvene at 2:30 p.m.]

AFTERNOON SESSION

Chairman STOKES. The committee will come to order.

The Chair recognizes counsel for the committee, Mr. Klein.

Mr. KLEIN. Thank you, Mr. Chairman.

Mr. Chairman, I would only like to state for the record that I have spoken to Mr. Arther, the committee's polygraph consultant, and his account of the events leading to the writing of his report are significantly different than those stated today by Mr. Hart, and I understand that Mr. Hart has stated that he was only repeating what was told to him by the Office of Security. But for the record, Mr. Arther states that he accepted and read all materials made available to him by the CIA and considered all of these materials in reaching these conclusions.

That is all I have to say, Mr. Chairman.

Thank you very much.

Chairman STOKES. Thank you, Counsel.

The Chair will recognize the gentleman from Connecticut, Mr. Dodd, for such time as he may consume, after which the committee will operate under the 5-minute rule.

Mr. DODD. Thank you, Mr. Chairman.

Mr. Hart, thank you for your statement this morning.

Mr. Hart, let me ask you this question at the very outset.

Would it be fair for me to conclude that it was the responsibility of the Central Intelligence Agency to find out, from whatever available sources between late 1963 and 1964, what the activities and actions of Lee Harvey Oswald were during his stay in the Soviet Union?

TESTIMONY OF JOHN HART—Resumed

Mr. HART. Congressman, I want to answer that by telling you that I do not know——

Mr. DODD. Let me say this to you, Mr. Hart.

Wouldn't it be a fair assessment that the Central Intelligence Agency had the responsibility during that period of time to examine whatever information could point to or lead to those activities, to provide us with information regarding Lee Harvey Oswald's activities in the Soviet Union? Isn't that a fair enough, simple enough statement?

Mr. HART. Sir, I can't agree to that in an unqualified manner for several reasons. May I give the reasons in sequence?

Mr. DODD. Go ahead.

Mr. HART. In a telephone conversation between the then Director of Central Intelligence, John McCone, and Mr. J. Edgar Hoover, which took place on the 16th of November 1963 at 11:20 a.m., Mr. McCone said:

I just want to be sure that you were satisfied that this agency is giving you all the help that we possibly can in connection with your investigation of the situation in Dallas. I know the importance the President plays on this investigation you are making. He asked me personally whether CIA was giving you full support. I said they were, but I just wanted to be sure that you felt so.

Mr. Hoover said "We have had the very best support that we can possibly expect from you."

Then the implication through the rest of this document, which I am perfectly happy to turn over to the committee, is that Mr. McCone and Mr. Hoover feel that the main responsibility for the investigation falls on the FBI.

My second point is that when I came on board in the Agency, having been recalled in mid-June, I asked about the responsibility for the Lee Harvey Oswald matter because I knew that he had entered into the overall Nosenko case. I was told that the responsibility for the investigation had rested almost entirely with the FBI. There were a couple of reasons for that.

First, it was understood, although I realize that there had been violations of this principle, Mr. Congressman, it was understood that the jurisdiction of the Central Intelligence Agency did not extend within the territorial limits of the United States, and the Central Intelligence Agency had no particular, in fact, did not have any assets capable of making an investigation within the Soviet Union, which were the two places really involved.

Third, I want to say that in my own investigation, since I intended to depend entirely or almost entirely on documentary evidence for the sake of accuracy, I ruled out going into the Lee Harvey Oswald matter because I realized that I could not possibly have the same access to FBI documents which I had in the Agency where I had formerly been employed which gave me complete access to everything I wanted.

Mr. DODD. Mr. Hart, as I understand what you have given me in response to my question is the fact that you assumed that the FBI was principally responsible for the investigation, and that Mr. McCone, as Director of the Central Intelligence Agency, in his conversation with Mr. Hoover, indicated that he would be cooperating fully in that investigation. So to that extent, and that is the extent I am talking about, it was the responsibility of the Central Intelligence Agency to cooperate in a responsible fashion in ferreting out whatever information would bear on the activities of Lee Harvey Oswald when he was in the Soviet Union, utilizing whatever sources of information were available to the Central Intelligence Agency in achieving that goal.

Is that not a correct and fair statement of the responsibilities of your Agency?

Mr. HART. Insofar as I am aware of them. Keep in mind please, Congressman, that I had nothing to do with this case. I do not know about—

Mr. DODD. I am asking you Mr. Hart, for a comment about the activities of the Agency, not specifically your actions as one individual. You spent 24 years with the Agency, so you are familiar with what the responsibilities of the Agency are.

Mr. HART. My response to that is that I believe that the Agency should have done everything that it could to assist the FBI. I do not know exactly what the Agency did to assist the FBI, nor do I know what relevant assets or capabilities the Agency had during the time we are concerned with to take any relevant action.

Mr. DODD. All right.

But you are answering my question; you are saying, "yes," in effect. It was their responsibility to assist the FBI or do whatever

else was necessary in order to gain that information about Lee Harvey Oswald's activities when he was abroad.

Mr. HART. Congressman, I have to repeat that there may have been agreements between the Agency and Mr. Hoover or other parts of the Government of which I am not aware. I, for example, am virtually without knowledge of a very long span of time during which the Director of the Central Intelligence Agency and Mr. Hoover were barely on speaking terms. I know that it was very difficult for the two Agencies to get along. I do not happen to know the reasons for it, and I am in no position to judge what they did, why they did it or what they should have done in order to resolve the lack of cooperation.

Mr. DODD. Well, after listening to your statement for 1 hour and 40 minutes this afternoon, do I take it that you would concede the point that, as the CIA's activities pertain to one vitally important source, potential source of information namely, Mr. Nosenko, that in the handling of that potential source of information, as it bore on the assassination of a President of the United States, the Central Intelligence Agency failed in its responsibility miserably?

Mr. HART. Congressman, within the context of the total case, I would go further than that. I would say that the Agency failed miserably in its handling of the entire case, and that since the Lee Harvey Oswald question was part of that case; yes.

Mr. DODD. And, Mr. Hart, I am not going to—I will ask you if you recall with me, basically, the conclusion or one of the conclusions of the Warren Commission report.

Were we not told in the conclusion of the Warren Commission report that "All of the resources of the U.S. Government were brought to bear on the investigation of the assassination of the President," and in light of your last answer, that conclusion was false?

Would you agree with me?

Mr. HART. Well, Congressman, I do not like to have my rather specific answer extrapolated.

Mr. DODD. But we do consider the Central Intelligence Agency to be part of the U.S. investigatory body; don't we?

Mr. HART. I do.

Mr. DODD. And you just said they failed miserably.

Mr. HART. I said they failed miserably in the handling of this whole case.

Mr. DODD. Therefore, it would be fair to say that the conclusion of the Warren Commission report in its statement that all of the resources of the U.S. Government were brought to bear in the investigation of the death of the President is an inaccurate statement. That is not a terribly difficult piece of logic to follow, I don't think.

Mr. HART. It requires me to make a judgment, which I am not sure that I am willing to make, because I can think of possible other evidence which might come up which might show that there is a case to support the fact that the leader, top leadership of the Agency, may have thought they were bringing all their resources to bear. I simply do not know that.

Mr. DODD. The only question left, it would seem to me, in going back to Mr. Blakey's narration at the outset of this part of our

investigation, where he noted that the Nosenko case was important in two areas. One had to do with the efficiency, the effectiveness, the thoroughness of the CIA's performance, and, second, the credibility of Mr. Nosenko.

It would seem to me, in response to the last series of questions you have just given me, that we have answered the first question, and what is left is the second question, that is, whether or not this committee and the American public can believe Mr. Nosenko's story with regard to the activities of Lee Harvey Oswald during his tenure in the Soviet Union.

And Mr. Hart, I would like to ask you, in light of your testimony today, again going more than an hour and a half, why should this committee believe anything that Mr. Nosenko has said when, after your testimony, you state that he was intimidated, not interrogated, for more than 3 years, that he was probably hallucinating during various stages of that interrogation, that he was, according to your testimony, a man of a very short memory; that he was drunk or at least heavily drinking during part of the questioning; that there are no accounts, verbatim accounts, of some of the interrogation but rather notes taken by people who didn't have a very good knowledge of Russian. Why then should we believe any of the statements of Mr. Nosenko, which from point to point contradict each other, in light of the way he was treated by the Central Intelligence Agency from the time he defected in January of 1964 until today?

Mr. HART. I believe that there are important reasons why you should believe the statements of Mr. Nosenko. I cannot offhand remember any statements which he has been proven to have made which were statements of real substance other than the contradictions which have been adduced today on the Lee Harvey Oswald matter, which have been proven to be incorrect. The important things which he has produced, which we have been able, which the Agency have been able to check on, have, by and large, proved out. The microphones were in the Soviet Embassy. He has clarified the identities of certain Soviet agents who are in this country. His information led to the arrest of an extremely important KGB agent in an important Western country. The volume of material which he has produced far exceeds my ability to have mastered it but it has been found useful over the years, and to the best of my knowledge, it has been found to be accurate.

Mr. DODD. What you are asking us, therefore, to believe is, because Mr. Nosenko may be credible on certain issues and in certain areas, he is therefore credible in all areas.

Mr. HART. No, sir. I am not asking you to believe anything in connection with his statements about Lee Harvey Oswald. I am only asking you to believe that he made them in good faith. I think it is perfectly possible for an intelligence officer in a compartmented organization like the KGB to honestly believe something which is not true.

Mr. DODD. Which statements of Mr. Nosenko's would you have us believe? Have you read, by the way, the report that we sent you, a 40-page report, that was sent last week to the Central Intelligence Agency pursuant to the request of the Agency?

Mr. HART. Are you speaking of the report which, the essence of which, Professor Blakey read today?

Mr. DODD. Yes, I am.

Mr. HART. Yes, I have read that.

Mr. DODD. You have read that report?

Mr. HART. Yes.

Mr. DODD. I am curious, Mr. Hart, to know why—it was my belief and understanding, and I am really curious on this point—why it was that you didn't address your remarks more to the substance of that report than you did? I don't recall you once mentioning the name of Lee Harvey Oswald in the hour and 30 minutes that you testified, and I am intrigued as to why you did not do that, why you limited your remarks to the actions of the Central Intelligence Agency and their handling of Nosenko, knowing you are in front of a committee that is investigating the death of a President and an essential part of that investigation has to do with the accused assassin in that case; why have you neglected to bring up his name at all in your discussion?

Mr. HART. The answer is a very simple one, Congressman. I retired some years ago from the Central Intelligence Agency. About 3 weeks ago I received a call from the Central Intelligence Agency asking me to, if I would, consent to be the spokesman before this committee on the subject of the Nosenko case. I said that I will be the spokesman on the subject of the Nosenko case but I will not be the spokesman on the subject of Nosenko's involvement with Lee Harvey Oswald. That was a condition of my employment. And if they had attempted to change that condition before I came before this body, I would promptly have terminated my relationship because I do not want to speak about a subject concerning which I do not feel competent.

Mr. DODD. Do you appreciate our particular difficulty here today in that our responsibility and obligation is to focus our attention more directly on that aspect than on the other, and that we are a bit frustrated in terms of trying to determine what the truth is with regard to the activities of the Agency as they pertain to Mr. Nosenko's statements regarding the activities of Lee Harvey Oswald?

Mr. HART. Congressman, I fully appreciate the difficulty, but I must observe that it is not a difficulty which I created. I was perfectly frank about what I was willing to testify about and what I was not willing to testify about.

Mr. DODD. So it would be fair for me to conclude that really what the Central Intelligence Agency wanted to do was to send someone up here who wouldn't talk about Lee Harvey Oswald.

Mr. HART. I personally would not draw that conclusion, but I think that is a matter best addressed to the Director of Central Intelligence rather than to me.

Mr. DODD. Well, you told them you wouldn't talk about Lee Harvey Oswald and they said that is OK you can go on up there.

Mr. HART. I told them, once I came on board, that is as I saw it, a crucial question lay here in the credibility of Lee Harvey—of Nosenko, and that I thought I was qualified to address myself to the question of the credibility of Nosenko, now I mean the general credibility of Nosenko.

Mr. DODD. But you cannot really testify as to the credibility of Mr. Nosenko with regard to statements he may have made about Lee Harvey Oswald's activities in the Soviet Union.

Mr. HART. I can say this, and here you realize that I am entering into an area of judgment, it is my judgment that anything that he has said has been said in good faith. I base that judgment on an enormous amount of work on this case in which I see no reason to think that he has ever told an untruth, except because he didn't remember it or didn't know or during those times when he was under the influence of alcohol he exaggerated.

Mr. DODD. You understand our difficulty. We are trying to find out which one of his statements are true. All right?

Do you have that report in front of you, by the way, the one that we sent you?

Mr. HART. No, sir; I do not have it in front of me.

Mr. DODD. Mr. Chairman, could we provide the witness with the copy?

Chairman STOKES. Do you have it with you, sir?

Mr. HART. I have what we were given this morning, which is substantially the same thing, I believe, as the one we received. I believe that Professor Blakey had some items in this morning which were not even in here; is that correct, sir?

Mr. BLAKEY. The report as read is a partial reading of what was there. The narration that preceded it was not given to you before you came, although of course it was given before you testified. The report that was given to the public is substantially the report that was given to you. There have been some grammatical changes in it, correction of some typographical errors, but all matters of substance are the same.

Mr. HART. Thank you.

Mr. DODD. Is that a complete copy of the report that Mr. Hart has in front of him?

Mr. BLAKEY. Yes.

Mr. DODD. Mr. Hart, just some of them. I don't want to belabor this point but to impress upon you the difficulty we have in light of what you have said this afternoon, in terms of us trying to determine what in fact we can believe from Mr. Nosenko's story. Turn to page 27 or 28 of that report, if you would, please, 27 first.

Look down around the middle of the page, and let me begin reading there in our report.

Speaking to the CIA on July 3, 1964, Nosenko was specifically asked whether there was any physical or technical surveillance on Oswald, and each time he replied "No."

In 1964, after stating to the CIA that there was no technical and physical surveillance of Oswald, Nosenko made the following statement upon being asked whether the KGB knew about Oswald's relationship with Marina before they announced that they were going to be married:

Answer. "They (KGB) didn't know she was a friend of Oswald until they applied for marriage. There was no surveillance on Oswald to show that he knew her."

Although in 1978 Nosenko testified that there were seven or eight thick volumes of documents in Oswald's file, due to all of the surveillance reports and that he could not read the entire file because of them, in 1964 he told the FBI agents that he "thoroughly reviewed Oswald's file." There was no mention of seven or eight thick volumes of surveillance documents.

Now, there, and I should have probably started up above, but there we have two cases where, one, he is claiming that there was

no surveillance. Then he is stating there was surveillance. He is telling us that he, on the one hand, didn't have the opportunity or didn't see any reports on Oswald from Minsk and then turns around and says that he did have a chance to look at them.

Which can we believe?

I mean these are two contradictory statements by a man who, according to your testimony, may be acting in good faith, but we are confronted with two different sets of facts.

Which do we believe? Can we in fact believe him, if we accept your testimony this afternoon that he went through this outrageous treatment for a period of more than 3 years?

Mr. HART. Congressman, I think what this boils down to, if I may say so, is a question of how one would, faced with a choice as to whether to use this information or not, would do so. It would be a personal decision. If I were in the position of this committee, I frankly would ignore the testimony of Mr. Nosenko but I wouldn't ignore it because I think it was given in bad faith.

Let me express an opinion on Mr. Nosenko's testimony about Lee Harvey Oswald. I, like many others, find Mr. Nosenko's testimony incredible. I do not believe, I find it hard to believe, although I, as recently as last week, talked to Mr. Nosenko and tried to get him to admit that there was a possibility that he didn't know everything that was going on, I find it very hard to believe that the KGB had so little interest in this individual. Therefore, if I were in the position of deciding whether to use the testimony of Mr. Nosenko on this case or not, I would not use it.

I would like to say, just to conclude my remarks, let me tell you why I don't believe it. I had 24 years of experience in a compartmented organization, and I was chief of several parts of the organization which had done various things at various times which came under investigation, happily not while I was in charge of them. I will make one specific, give you one specific example.

I was once upon a time chief of what we can call the Cuban Task Force, long after the Bay of Pigs, within the Agency. At some point I was asked whether I knew anything, whether I thought there had been an attempt to assassinate Castro. I said in all good faith that I didn't think there had. I had absolutely no knowledge of this. It had been kept from me, possibly because my predecessor several times removed had taken all the evidence with him. I didn't know about it, but I said it in good faith. And I think it is very possible that an officer of Nosenko's rank might have functioned within the KGB and not known everything which was going on in regard to this particular man.

Mr. DODD. So you would suggest to this committee that we not rely at all on Mr. Nosenko for information that could assist us in assessing the activities of Lee Harvey Oswald in the Soviet Union?

Mr. HART. I believe as a former intelligence officer in taking account of information of which there is some independent confirmation if at all possible, and there is no possibility of any information, independent confirmation of this, and on the face of it, it appears to me to be doubtful. Therefore, I would simply disregard it.

Mr. DODD. I would like to, if I could—first of all, do you still maintain your security clearance?

Mr. HART. Yes, sir. I have. It is restored when I go back to the Agency to do work such as this, yes.

Mr. DODD. Now your statement at the outset was that there was communication and contact between the FBI and the CIA with regard to the investigation, and in fact the FBI was principally responsible, and that the CIA was to assist.

Is that a fair summation of what the memo indicated?

Mr. HART. To the best of my knowledge, yes. I produced this thing in which the Director of Central Intelligence, Mr. McCone, says to Mr. Hoover, "Well, you can call on us for anything we have." I think the implication is perfectly clear, that Mr. McCone is offering to be helpful to Mr. Hoover but is implying that he is playing a secondary role in this matter.

Mr. DODD. So that it would be fair to characterize the actions of the FBI as being that of principally responsible for the investigation into the assassination and calling upon the Central Intelligence Agency to respond in areas where the Agency had particular expertise or knowledge that was not available to the FBI?

Mr. HART. Yes, sir.

Mr. DODD. So we talk about Lee Harvey Oswald's activities abroad, and we have a potential defector who has indicated to the Agency that he has some specific knowledge with regard to the activities of Lee Harvey Oswald during his stay in Russia, his activities abroad. That would legitimately fall into that category, an area where the Central Intelligence Agency would have a specific expertise or knowledge that was not necessarily available to the FBI?

Mr. HART. Yes, sir.

Mr. DODD. Now in our report, at the bottom of page 4 and top of page 5, it states, and I will quote from the report: "Statements by Nosenko at the time of his contact with the CIA in 1964 revealing he had information about Lee Harvey Oswald led to his being questioned by the FBI upon arrival in the United States. He was interviewed in late February and early March. It is not known if these sessions were tape recorded, but as of today, all that exists are statements prepared by the interrogating FBI agents."

Do you have any reason to question that as being an accurate statement of the circumstances?

Mr. HART. I have no reason to question it.

Mr. DODD. I would like, Mr. Chairman, if I could, to give to Mr. Hart, and the reason I asked him whether or not he had a security clearance, I would like to give him a copy of a secret report from the Department of Justice. And I want to be very careful, Mr. Hart. I am going to ask you only about those areas that have been declassified in the report, and I have them specifically, but I would like you to have this.

[Clerk hands Mr. Hart the report.]

Mr. HART. Thank you, ma'am.

Mr. DODD. I wonder if you might, Mr. Hart, turning to page 5 of that report, I think it is question 8 on there, could you read the question to me, and then I would like you to limit your remarks to the first six lines ending with the word, I think it is two sentences there, the first two sentences, ending with the word "received."

Do you see where I want you to terminate?

Mr. HART. Yes, sir; I do.

Mr. DODD. Would you read the question and read the response, please?

Mr. HART. "If the answer to question 6 is different from the response to question 7, when did the change occur and why?"

The answer is "The FBI had no direct access to Nosenko from April 3, 1964 until April 3, 1969 and therefore was not in a position to make an objective assessment of his bona fides nor of the veracity of information furnished by him. Thus information provided by him in early 1964 was accepted at face value and qualified in terms of the source and the conditions under which it was received."

Mr. DODD. Now could you look on page 6 and read the question and answer to question 12?

Mr. HART. The complete answer?

Mr. DODD. The complete answer there and the complete question, yes.

Mr. HART. "What was the FBI's position from 1964 to 1968 on whether Nosenko was telling the truth in the statements he made to the FBI about Oswald?"

"Answer: The FBI did not take a position from 1964 to 1968 on whether Nosenko was telling the truth in the statements he made to the FBI about Oswald. The statements were accepted at face value and qualified in terms of the source and the conditions under which they were received."

Mr. DODD. And now lastly, Mr. Hart, I would like you to on page 7 read the complete question and the complete answer to question 15.

Mr. HART. "Question: Did either the FBI or the CIA have primary responsibility for investigating Nosenko's statements about Oswald? If neither had primary responsibility, was there any division of responsibility?"

"Answer: The FBI had primary responsibility for investigating Nosenko's statements about Oswald that pertained to his, Oswald's, activities in the United States, including the assassination of President Kennedy. The CIA had primary responsibility for investigating Nosenko's statements about Oswald's activities abroad."

Mr. DODD. I would now, Mr. Chairman, ask the clerk to pick up that secret report and bring it back. And for the purpose of the record, I am not going to offer that as evidence, obviously. But for the purpose of the record, that is the FBI's sworn statements in response to questions that this committee posed to the FBI regarding this specific source of information.

Chairman STOKES. I take it then the gentleman just wants the declassified portion that he examined on as a part of the record.

Mr. DODD. Only what I had Mr. Hart read into the record should be considered as part, as public record.

I would like to ask you, Mr. Hart, whether or not you would take issue with that last question, last response, with regard to the areas of responsibility, according to the FBI's assessments?

Mr. HART. I do not take issue with it.

Mr. DODD. Then I would like to come back once again, if I could, to my first question to you, and that is, whether or not it was not in fact the responsibility of the Central Intelligence Agency to ferret out, to seek out, to do whatever it could to learn everything

possible about the activities of Lee Harvey Oswald as they pertained to his activities in the Soviet Union.

Was that not in fact a responsibility of the Central Intelligence Agency including not only my assessment but the assessment of the Federal Bureau of Investigation?

Mr. HART. Yes.

Mr. DODD. Mr. Chairman, I would reserve the balance of my time and would like to come back, if I could, but I would like to give my other colleagues on the committee the opportunity to ask questions at this point.

Chairman STOKES. The Chair will protect the gentleman in the preservation of his time.

The Chair now recognizes the gentleman from Indiana, Mr. Fithian——

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES [continuing]. For 5 minutes.

Mr. FITHIAN. Mr. Hart, wasn't it knowledge at the CIA at the time those individuals were dealing with Mr. Nosenko that he was the one person, the one source, that this country had to ascertain what Lee Harvey Oswald's activities were in Russia?

Mr. HART. Congressman, I have every reason to believe that that was the case. I want to repeat what I said before, that I was among a number of thousands of people who were excluded from the knowledge of this case, but everything, every bit of common sense I have, tells me that that should have been the case, yes.

Mr. FITHIAN. Thank you.

Now to just return to one area that Mr. Dodd has already proceeded on, it seems to me very clear that to fulfill the CIA's obligations with regard to the international aspects of the assassination, that it would have been much more helpful in what must be viewed as one of the most important endeavors of early 1964, it would have been infinitely more useful for the Agency to have first tried to obtain from Mr. Nosenko all the information that they could about the President's alleged assassin.

Isn't that clear now and shouldn't it have been clear then to the Agency that that would have been a logical first step?

Mr. HART. Yes, it would have been. What I cannot judge, on the basis of the documents, and I have tried to stick very close to the documents, was whether or not they thought they had done everything that they could, because they had asked Mr. Nosenko, he had given them the information, and they may have thought they had done their bit, I am simply unable to judge what the opinions were of people at that time.

Mr. FITHIAN. In fact former Director Mr. Helms said, when asked if questions concerning Oswald did in fact constitute a major facet of the overall inquiry that was being made of Nosenko, Helms replied "Yes, no question about it."

Now if in fact the former Director is correct, and the inquiries that the Agency was making of Nosenko centered on the information he might have had on Oswald, that is, information he might have had about Oswald, it seems to me then that what you are testifying here to today, starting with, if I may just retrace your testimony, starting with the fact that in Geneva, even before the Oswald matter, the case was pretty badly handled, that is, they

had an English-speaking person trying to take notes and writing down what this major potential defector was saying and then transcribing those and giving them to the Agency, right on down through the interrogation, it seems to me to underscore again that, despite the fact that Mr. Helms and others were aware that that was the No. 1 mission of the Agency, that the performance of the Agency was really pretty dismal. That is the only conclusion I can draw from it.

Am I wrong?

Mr. HART. Congressman, that would be the conclusion which I would draw. But I want to once again say that I know the limitations of my own knowledge, and I have tried, in the course of my activities in this highly controversial matter, to be sure that I kept that in mind. I too have done some writing of history, and I know that you shouldn't go beyond, you shouldn't extrapolate from facts beyond the bounds of certainty.

Mr. FITHIAN. To the best of your knowledge, did the CIA make any attempt to verify the information Nosenko provided regarding Oswald's contacts or lack of them with the KGB?

Mr. HART. I will have to think about that just a minute to see if I remember.

Yes, I can say that they did, yes. They did. They asked a number of people about this. They got a number of affirmative actions about Nosenko's statements about himself.

Now within the climate of the time, and here I have to introduce a word which was used by many persons in the CIA at that time about this whole project, the climate of the time was one of what many people called sick think, and it was concluded when a Soviet said yes, Nosenko is telling the truth, that that cast a reflection upon the Soviet who said yes, Nosenko is telling the truth. That was taken as pretty clear evidence that he himself was under KGB control. Otherwise he would not testify in favor of Nosenko's truthfulness.

Mr. FITHIAN. Mr. Hart, is this the first time that the Nosenko case has been discussed before a congressional committee?

Mr. HART. As far as I know, yes, sir; except that—well, I don't know whether the Rockefeller committee would be considered congressional or not. I gather not.

Mr. FITHIAN. I was referring to the Church committee.

Mr. HART. Oh, I cannot speak about the Church committee.

Mr. FITHIAN. At least you did not participate.

Mr. HART. No, sir.

Mr. FITHIAN. Now we have been working with the Agency and sometimes with you over the past while. If the CIA was aware of the blunders that you testified to here today, the blunders that were made during the early interrogation of Nosenko, why are we first learning about them now at the end of our 2 years of endeavor?

Mr. HART. Since I have no position of command or responsibility in the Agency, I can't tell you that.

Chairman STOKES. The time of the gentleman has expired.

Mr. FITHIAN. Thank you, Mr. Chairman.

Chairman STOKES. The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Witness, aside from what Nosenko has testified to, do you, yourself, have any knowledge of any agency relationship with Oswald?

Mr. HART. I do not.

Mr. SAWYER. When he was paid this money when he was released, as I understand it, I get two figures, but one of them would lead you to believe it was \$125,000 and the other some \$87,000.

Do you know how much it was?

Mr. HART. The divergence between those two figures I believe had to do with the fact that the amount owed in income tax was obviously subtracted before he was given the sum.

Mr. SAWYER. So then he got \$125,000 but after taxes he got \$87,000.

Mr. HART. I believe that is correct, yes, sir.

Mr. SAWYER. Then you gave him another \$50,000 after that; is that right?

Mr. HART. If my memory serves me, Congressman, the \$150,000 was added up in bits and pieces over the years, and it included advances which were made to him when he first came to the United States, and so forth. In other words, he was allowed spending money during the time before he was actually confined in isolation, and these amounts were kept track of. When added up, the amounts, one of which was, again if my memory serves me correctly, a down payment on a house were added up, and they came to \$50,000.

Mr. SAWYER. So then he got \$125,000 pretax, plus he got another \$50,000 when added together with a number of other items.

Mr. HART. Yes.

Mr. SAWYER. And then you paid him, then you put him on a salary or retainer or some kind or contract?

Mr. HART. Yes, sir.

Mr. SAWYER. And what salary is he getting now on that?

Mr. HART. I do not have the figures as to what his actual salary is. I will speak from memory. I believe his salary is somewhere in the lower \$30,000's.

Mr. SAWYER. He told us that he came into the CIA about once a month, sometimes for a couple of days; is that about right?

Mr. HART. I do not know that, sir. I know that he comes in periodically but I do not know how often.

Mr. SAWYER. What does he do between the periods?

Mr. HART. I am afraid that what he does between the two periods is an item of classified information which I cannot discuss here in this committee.

Mr. SAWYER. Is he working for the CIA in between the periods?

Mr. HART. To a large extent, I cannot give you the percentage of time that he devotes to work as against the percentage of time that he does not devote to work.

Mr. SAWYER. Apparently as of now he is receiving \$35,325 a year. Would that be about the range?

Mr. HART. That would accord with my memory, yes.

Mr. SAWYER. This arrest of Nosenko took place in the United States, did it not, as I understand it?

Mr. HART. Yes, sir.

Mr. SAWYER. Was there any kind of process or authorization or anything sought by the CIA to do this?

Mr. HART. I won't tell you what the process was. I have been advised by the CIA general counsel that if you have, if the committee has any questions as to the legal validity of this, that this question should be answered by a member of the general counsel's staff because I am not a lawyer, but—

Mr. SAWYER. I am one, and I don't think there is any question about the legal validity of it. It is a question, did you have any kind of a semblance, a process of any kind?

Mr. HART. The process is what I am about to explain. The process was a trip by Mr. Helms to the Department of Justice in which he consulted Mr. Nicholas Katzenbach who was at that time the Deputy Attorney General, and Mr. Katzenbach brought in one or two other people and they discussed the status of a person who is here on parole. The reasoning as I remember it was that a person who is here on parole was not legally within the United States, in the normal sense of the term.

Mr. SAWYER. So then on the basis of Katzenbach's OK, you made the arrest; is this correct?

Mr. HART. That is the sequence of events, yes.

Mr. SAWYER. And where was he taken after he was arrested?

Mr. HART. He was taken to a house in the suburbs of Washington, the location of which I am told is still, I am to treat as classified, and he was held there under the circumstances which I have previously outlined.

Mr. SAWYER. But then he was moved at some time, was he not?

Mr. HART. He was moved to still another place which was built especially to house him, the location of which I am not at liberty, according to my instructions, to divulge. But I can tell you what it was like, if you so desire.

His accommodations were somewhat better but they were absolutely unacceptable, in my personal opinion, from any civilized point of view.

Mr. SAWYER. But these facilities were built specially to put him in?

Mr. HART. They were, sir.

Mr. SAWYER. Would it be fair to say in some other part of the country, other than this area?

Mr. HART. In another part of the country, not in the District.

Mr. SAWYER. But in the United States?

Mr. HART. Within the United States, yes, sir.

Mr. SAWYER. And was this a windowless facility that he was kept in?

Mr. HART. It would be most closely comparable, Congressman, to a bank vault. The door to it was in fact the type of barred door which you see to protect safety deposit vaults in small banks.

Mr. SAWYER. How big a thing was he kept in? How big was this room?

Mr. HART. The exact dimensions I don't remember, but I would estimate, and I am a pretty good estimator of size, I would say between 10 by 10 and 12 by 12.

Mr. SAWYER. With no windows or ability to look outdoors or anything?

Mr. HART. Correct, sir.

Chairman STOKES. The time of the gentleman has expired.

Mr. SAWYER. Thank you.

I wonder if I could have an additional 2 minutes, Mr. Chairman.

Chairman STOKES. Without objection.

Mr. SAWYER. I understood from talking to Mr. Nosenko too that there was an episode where he became so desperate for something to do, because he was not allowed even to read, that he fashioned a little chess set out of threads he pulled out of the clothing that was put on him, to do something, and when they observed this, they confiscated that too.

Were you aware of that episode?

Mr. HART. I am, sir. That is true. He also made himself a calendar out of lint from his clothing, because he was trying to keep track of time, which as I have previously mentioned, the book I have on scientific studies of the effects of isolation, it becomes very hard when you are isolated over a prolonged period of time to keep track of time. Your sense of time simply slips, there not being any landmarks, as it were. He was desperately trying to keep track of the time, so he made himself calendars out of lint. But in the course of his having been compelled to sweep up his room or clean up his room, why these calendars were of course ruined, so he had to start all over again.

Mr. SAWYER. Another thing I didn't understand is you said that he had a bad memory.

Well, of course a bad memory wouldn't affect a polygraph test at all, would it?

Mr. HART. Yes, sir, it could.

Mr. SAWYER. How could it, in that it doesn't record whether what you are saying is correct or not? It merely records whether you are deliberately falsifying, and if you don't remember, your memory is poor, it wouldn't register against you on a polygraph?

Mr. HART. Well, it is slightly more complicated than that, sir, in that the person has to, one, know the difference between the truth or falsity of what he is saying. He also has to have a sense of guilt in regard to telling something which is untrue, and that sense of guilt is reflected in the physiological change which then registers on the polygraph.

Mr. SAWYER. But if his memory is faulty, he will be thinking he is telling the truth, but it is just faulty memory, and therefore it would not affect the validity of the polygraph.

Mr. HART. That, itself, would not affect the validity of the polygraph, in and of itself, no.

Mr. SAWYER. You also said that part of the reason for this great secrecy was because this plot, this disinformation plot, was so dangerous. Well, all you had to do is not believe what he told you and it couldn't hurt anything, could it?

Mr. HART. Congressman, if I may have permission, I would like to read an excerpt from a document which I wrote following an interview with the man whom I have called the Deputy Chief SB Division. I went to see the Deputy Chief SB Division in the middle of 1966—excuse me—1976, and I asked him questions about various aspects of this case in which he had been the prime mover really.

One of them I asked him related to a message from him from a place abroad which had gone around me. I was his chief, but he had sent me a message. He had sent a message through a channel so that I would not see it, to the chief of the CI staff, in which he had commented on the so-called Solly report, which was the Office of Security's report which was published in 1978 and which laid the basis for the rehabilitation of Nosenko. In this letter, which I ran across only because I had all files available to me, once I made my investigation, he talked about the devastating consequences, that is in quotes, "devastating consequences" of the liberation of Nosenko.

Now I want to read the document, if I may. This is a memorandum of conversation which I made immediately after my interview with this man, and I had a witness present during the time I talked to him and also during the time I made this statement.

"In an effort to approach the question of KGB objectives from another angle, Hart asked DCSB to specify what 'devastating consequences' he thought were likely to ensue from freeing Nosenko. His response to this question was also evasive. He said that inasmuch as there had been no devastating consequences, it was pointless to talk about what might have happened. To a further question as to what consequences he had anticipated that might affect him personally—for he had said that there would be dangers to him personally—"he refused to answer on grounds that the matter was speculative."

I have no idea what he was talking about frankly.

Mr. SAWYER. And that would apply then to the plot, this misinformation plot, requiring this great secrecy in handling too, I assume.

Mr. HART. I have tried to remain fairly dispassionate in my presentation this morning, Congressman. I think it may have seeped through that, I think, this so-called plot was sheer nonsense.

Mr. SAWYER. Now, we were told by Mr. Nosenko that these periods of interrogation would run 48 hours at a stretch. Did you verify that?

Mr. HART. I cannot at this moment remember one which lasted 48 hours, but I do not doubt that that may have happened, because what they did was, they staged them at irregular hours and people came and went.

I am not sure that the records would even be able to establish the fact because the times were not always kept track of that accurately.

Mr. SAWYER. Incidentally, to who was that memo addressed, or to whom was it addressed, that made a mention of "before they dispose of him." Who was the addressee?

Mr. HART. That was not a memo. That was not a memo which went anywhere. That was written by the man I referred to as deputy chief SB, and it was a draft which he had then corrected in his handwriting.

On the outside of it it said "excised portions" of a report. So, it was something which did not go to any addressee, as far as I know.

Chairman STOKES. The time of the gentleman has again expired.

Mr. Hart, can you tell us the cost of this specially constructed house for Mr. Nosenko?

Mr. HART. It would be easy to ascertain, Mr. Chairman, but I do not happen to know how much it was. I will tell you that it must have been quite expensive because I can describe it for you briefly, if you wish, sir.

In addition to the vault it consisted of a house which disguised the vault, which surrounded it, and which contained facilities for the guard force to live and pass their time while they were guarding this man.

There was a chain link fence out at the back containing a very small area, and by that I mean an area of, I would estimate again, from seeing photographs, perhaps 12 by 16, which was built as an exercise area. Then around all that there was another chain link fence with barbed wire at the top of that.

The building, the vault itself, was a very expensive construction because it consisted of heavy steel-reinforced concrete.

Chairman STOKES. When you say that the cost is obtainable, you mean that we could obtain it from the Agency. Is that what you are saying?

Mr. HART. Absolutely, sir, yes.

Chairman STOKES. Now, as I understand your testimony this morning, when you were called back in your present capacity you conducted a study from June of 1976 until December of 1976, yourself and four assistants, with reference to ten four-door safes of documents, is that correct?

Mr. HART. Yes, sir.

Chairman STOKES. And it is from this material that you now lecture for some four and one half hours, is that correct?

Mr. HART. I have lectured on one occasion for four and one half hours. Yesterday I made a similar lecture and tried to reduce it, and did conduct the lecture followed by a question period in 2½ hours.

Chairman STOKES. During the course of this lecture, whether it be two and one half hours or four and one half hours, do you, during the course of that lecture, touch upon the Oswald portion of the CIA's activities?

Mr. HART. I make it a point to say at the beginning of the lecture that I did not investigate the Oswald matter because it was impossible for me to do so for a number of reasons, the most cogent of which is that I could never have had access to the amount of documentary evidence which I had access to in CIA, and I insisted before I agreed to make the study that I must have total access.

I could not have asked for that at the FBI.

Chairman STOKES. For what reason?

Mr. HART. I don't think they would have given it to me. I was able to ask for it at the Central Intelligence Agency because I was a senior officer who had served with them for nearly a quarter of a century and they trusted me. I had built up no such record of trust at the FBI.

Chairman STOKES. You also told us this morning that a decision was made not to tell Mr. Helms about what was going on with relation to Mr. Nosenko, is that true?

Mr. HART. No, sir, I didn't say that the decision was made. I said that I drew the conclusion from the way the documents were

phrased, reports to Mr. Helms were phrased, that Mr. Helms was not being adequately informed of this subject.

Now, that conclusion was based on a very large number of documents which I read and which I noticed a pattern of using words in their most harmless form.

In other words, if the documents were to speak of a polygraph examination, the documents did not speak of polygraph examinations in which we have previously attempted to frighten the man, and of the fact that they kept the man in his chair in between interrogations and so on.

I can only think of a couple of documents offhand from which Mr. Helms could have inferred the type of treatment which was being given the man.

Chairman STOKES. Didn't you say this. Didn't you say that he was not well-informed; that is, he was not given the total picture?

Mr. HART. I believe that he was not well-informed. I believe that he was not given the total picture.

Chairman STOKES. Then you added to that the fact that you yourself, in the capacity that you held at that time, with reference to two men whom you cited, you were not permitted to know certain things regarding those two men in your unit, is that true?

Mr. HART. That is absolutely true. Now, I never asked for information because I didn't know about the case.

Chairman STOKES. Well, I think the American people would probably be very much concerned about knowing what prevents that type of situation from prevailing at the CIA today; that is, how have things changed?

Mr. HART. Is that a question, Mr. Chairman?

Chairman STOKES. Yes.

Mr. HART. I can only speak from a small exposure to CIA as of the present time, so I cannot tell you all of what has changed or how. You must keep in mind that when I go back, I go back for brief periods and for a specific purpose. I am not involved in the large number of things which I was involved in before.

I do know that Admiral Turner overruled a number of his subordinates in insisting that I personally be brought back to give a series of lectures to all the newly promoted supergrade personnel through all parts, throughout all the agency on this subject.

I do know that Admiral Turner has specifically insisted that a number of his most senior people—and I don't know all of them by any means—read the rather lengthy document and annexes attached thereto, and that he has—he used the term, our escutcheon has been besmirched by this case, and said that he wanted to do everything he possibly could to see to it that there was never any repetition of this.

Chairman STOKES. But at any rate, if I understand your testimony correctly, if the agency has taken the proper steps and has initiated the kinds of reforms that will see that this kind of a situation never occurs again, you are not the proper person to tell us about those reforms, is that correct?

Mr. HART. That is correct, sir, because I have no command responsibility, no authority whatsoever. I am a one purpose person who was called back for this particular subject only.

Chairman STOKES. Now, let me ask you this.

This much we know—Nosenko was in the possession of the CIA, not the FBI, isn't that true?

Mr. HART. That is true, sir, yes.

Chairman STOKES. Now, we know that under American law the CIA has responsibility for matters outside the jurisdiction of the United States, don't we?

Mr. HART. Yes, sir.

Chairman STOKES. We know that the FBI has primary responsibility within the confines or the jurisdiction of the natural borders of the United States, isn't that true?

Mr. HART. Within the borders of the United States, yes, sir.

Chairman STOKES. Therefore, it is simple logic under law that with reference to the activities of Oswald in Russia, that would fall within the domain and the jurisdiction of the CIA, would it not?

Mr. HART. It would fall within the jurisdiction, but not necessarily the competence to do anything about that jurisdiction, yes.

Chairman STOKES. Well, being a historian, and being a part of the CIA as long as you have, you know that the CIA had a certain responsibility in terms of the investigation of the facts and circumstances surrounding the assassination of President Kennedy, do you not?

Mr. HART. Yes.

Chairman STOKES. Now, this much we also know, that Nosenko was under arrest and was in jail in the United States, isn't that true?

Mr. HART. That is right, sir.

Chairman STOKES. And during the period he was under arrest and in jail, out of 1,277 days he was only questioned in part 292 days, and according to your calculation 77 percent of the time he was not being questioned, is that correct?

Mr. HART. Absolutely correct, sir, yes.

Chairman STOKES. Then obviously the only conclusion that we can come to is that with reference to the activities of Oswald, through Nosenko, that there was no investigation of that matter by the CIA. Isn't that true?

Mr. HART. Off the top of my head I would tend to say that was true, because I have not seen any indications in those files which I have read of any energy on the subject.

I do want to point out that simply by virtue of the fact that a piece of correspondence was about Lee Harvey Oswald it would have been in a file which I did not ask for because I had pointed out that I could not do an adequate job which met my standards of scholarship if I didn't have access to all the documents.

So, I don't think I am really quite—I don't think I am completely competent to answer that question.

Chairman STOKES. Let me ask you this. One of the responsibilities of this committee is to assess the performance of the agencies in relation to the job that they did, cooperating with one another and with the Warren Commission in terms of the investigation of the assassination.

In light of your statements here to other members of the committee with reference to the performance of the agency which you have described as being dismal, et cetera, if I were to ask you to rate the performance of the agency in this matter on a scale of 1 to

10, with 10 representing the highest number, top performance, where would you rate them?

Mr. HART. I would rate it at the lowest possible figure you would give me an opportunity to use. I am perfectly willing to elaborate on that, Mr. Chairman.

I have never seen a worse handled, in my opinion, worse handled operation in the course of my association with the intelligence business.

Chairman STOKES. I have one other question I would like to ask you.

In the final report submitted by the Warren Commission, page 18 says this: "No limitations have been placed on the Commission's inquiry. It has conducted its own investigation, and all government agencies have fully discharged their responsibility to cooperate with the Commission in its investigation."

"These conclusions represent the reasoned judgment of all members of the Commission and are presented after an investigation which has satisfied the Commission that it has ascertained the truth concerning the assassination of President Kennedy to the extent that a prolonged and thorough search makes this possible."

Then at page 22 it further says this: "Because of the difficulty of proving negatives to a certainty, the possibility of others being involved with either Oswald or Ruby cannot be established categorically. But if there is any such evidence, it has been beyond the reach of all the investigative agencies and resources of the United States, and has not come to the attention of this Commission."

In light of your testimony here today with reference to the performance of the agencies, obviously the conclusions of the Warren Commission which I have just read to you are not true, are they?

Mr. HART. May I add one point. It is my understanding that the Nosenko information was made available to the Warren Commission but it was made available with the reservation that this probably was not valid because this man was not a bona fide defector and that there was a strong suspicion that he had been sent to this country to mislead us.

And therefore again speaking, sir, from memory and as somebody who has already told you that he is not an expert on this subject, I believe that the Warren Commission decided that they simply would not take into consideration what it was that Nosenko had said.

Chairman STOKES. But in light of the fact that we now know that the CIA did not investigate what Nosenko did tell them about Oswald in Russia, then obviously the Commission then still could not rely upon that data for that reason. Isn't that true?

Mr. HART. Mr. Chairman, I am not sure, when you use the word "investigate"—I am not absolutely certain, and I don't want to quibble about semantics needlessly, but I am not actually certain that there was much more to do.

I hesitate to judge in retrospect their actions on that basis. I would make harsh judgments on most other aspects. But I don't really know whether they did all they could or not because I do not happen to know whether, for example, all the other defectors were queried on this subject. No such file came to my attention.

So, I am once again having to say that I don't know for sure the answer to your question.

Chairman STOKES. My time has expired.

The gentleman from Connecticut, Mr. Dodd.

Mr. DODD. Thank you, Mr. Chairman.

Mr. Hart, in response to Chairman Stokes' question in terms of how you would rate the CIA's performance if you had to rate it on a scale of 0 to 10, I gather from your answer that you would rate it zero, that being the lowest score.

Mr. HART. Yes, sir.

Mr. DODD. Let me ask you to hypothesize with me for a minute. Let's assume, given the level of performance that you have just rated the Central Intelligence Agency's activities during that period of time, let's just suggest that if in fact there had been a conspiracy, or had been some complicity—and by that statement I am not in any way suggesting that I believe there was, but let's just for the sake of argument say there was—are you saying in effect that even if there had been some involvement by the Soviets that the caliber of the activity of the CIA during that period of time was such that we wouldn't have ever found out anyway?

Mr. HART. No, sir, I am not saying that.

Mr. DODD. You used a word in response to Mr. Sawyer. During your testimony you raised a point. He heard you use the word "disposal"—

Mr. HART. Yes, sir.

Mr. DODD [continuing]. In talking about a memo that you were quoting, on how Mr. Nosenko would be treated if certain things didn't occur. Is that a word of art in the Central Intelligence Agency and, if so, what does it mean?

Mr. HART. I would like to make—there is a two-part answer, Congressman. I would like to say that the word "disposal" is often used, I believe, rather carelessly because it can mean simply in the case of, say, a refugee whom you have been handling how do we dispose of this matter, how do we relocate him.

Now, the second part of my answer will be more specific. I think I know what it meant in this case, but I would prefer to depend on documents, and I will read you a document.

I am about to read you a very brief excerpt from a document, also written in the handwriting of deputy chief SB, which was not a document which to the best of my knowledge he ever sent anybody.

He appears to have been a man who didn't think without the help of a pencil. Therefore, he wrote, tended to write his thoughts out as they occurred to him.

I will read you the document. I don't believe that I am going to have to make any judgment. I think you will be able to draw your own conclusions, sir.

He was talking about the problems which were faced by the fact that a deadline had been given the organization to resolve the case. Mr. Helms had given them a deadline. As I have previously said, he believed that there would be "devastating consequences" if this man were set free.

What he wrote was, "To liquidate and insofar as possible to clean up traces of a situation in which CIA could be accused of illegally holding Nosenko."

Then he summed up a number of "alternative actions," which included—and I start with No. 5 simply because the first four were unimportant.

"No. 5, liquidate the man; No. 6, render him incapable of giving coherent story (special dose of drug, et cetera). Possible aim, commitment to loony bin." Some of the words are abbreviated, but I am reading them out in full for clarity.

"No. 7, commitment to loony bin without making him nuts."

Mr. DODD. The word "disposal," was that the word "liquidation" you were talking about?

Mr. HART. I am drawing the conclusion that disposal may have been a generalized word which covered inter alia these three alternatives.

Mr. DODD. There is no question about what the word liquidate means, though, is there?

Mr. HART. No, sir.

Mr. DODD. Since I have got you here, and you have that memo right in front of you, the words "devastating effect" that were predicted if Nosenko were released, to your knowledge, Mr. Hart, are you aware of any contract that may exist between the Central Intelligence Agency and Mr. Nosenko that in payment of the money that he has received he would not tell his story and that, therefore, we averted the alternative suggested in that memo or that note by the payment of money to Mr. Nosenko?

Mr. HART. No, sir. I can tell you that Mr. Nosenko will learn of this for the first time when he reads about it in the press because this information has been known to me, and I was the one in fact first to run across it.

I didn't feel that I needed to add to the miseries of Mr. Nosenko's life by bringing it to his attention. So, I did not do so.

Mr. DODD. Let me ask you this. In response to Chairman Stokes, you really—and I appreciate the position you are in in not being able to comment on what steps have been presently taken by the current administration or the immediately previous administration to reform some of the practices that have gone on in the past.

But can you tell us this, if you are not fully capable of talking about the reforms: Are some of these characters still kicking around the Agency, or have they been fired?

Mr. HART. There is nobody now—well, I will make one exception to that. There is one person now in the Agency whose activities in this regard I could question, but I do not like to play God. I know that—

Mr. DODD. Is it the deputy chief of the Soviet bloc?

Mr. HART. No, sir.

Mr. DODD. He is gone?

Mr. HART. Yes, sir.

Mr. DODD. I gathered by what you have told us here today that we really cannot rely on the statements of Mr. Nosenko for a variety of reasons, and that your suggestion to us was to discount his remarks, albeit you believe that in good faith he is a bona fide defector.

You have quite a few years of experience yourself, and I went over your resume and I noticed that you had a significant amount of experience as an intelligence analyst, as a counterintelligence analyst, you had written several papers on defectors, you seem to have some expertise in that area.

I would like to take advantage of your presence here today and ask you a couple of questions drawing upon that expertise, if I may.

Mr. HART. Yes, sir.

Mr. DODD. If you take out that report that we submitted to you, and looking at the bottom of page 23, and going over to page 24, and then there is a paragraph on page 25, I would like to read; and I would like to get your comments on it, if I could. Do you have it in front of you?

Mr. HART. I have page 23 with a heading in the middle which says, "Committee Investigation of Nosenko's Oswald Story." Is that the right place?

Mr. DODD. Yes. Going down to the last paragraph on that page, "Nosenko has always insisted that the KGB never had any contact with Oswald. He stated in both 1964 and 1978 that the KGB determined that Oswald was of no interest to them, and did not even bother to interview him."

Turning to page 24, "Question:"—and this is from the deposition—"And exactly why did no KGB officer ever speak to Oswald before they made the decision about whether to let him defect?"

Answer by Mr. Nosenko, "We didn't consider him an interesting target." When asked if he knew of any other defector who was turned away because he was uninteresting, Mr. Nosenko answered, and I quote, "No."

Turning to page 25, eliminating for the purpose of brevity a lot of this, I would like to draw your attention to the second paragraph from the bottom, which begins with the words:

In short, Nosenko's Oswald story is the following: The KGB although very interested in the U-2 never learned anything about it from Oswald because it didn't know he had any knowledge of the aircraft. Why? Because Oswald was never questioned by the KGB, because the decision was made that Oswald was of no interest to Soviet intelligence.

Now, as someone who has had a quarter of a century of experience in this area, do you think that is plausible?

Mr. HART. Well, let me first downgrade your expectations of me a little bit, if you don't mind, Congressman. I have had a quarter of a century of experience, but a lot of it was in fighting wars in Vietnam and Korea and going in jungles—

Mr. DODD. I will accept your disclaimer.

Mr. HART. But let us assume that I have some expertise, but it is not quite as great as you attribute. I am flattered, but I am not that good.

However, I find it implausible that in the relatively small city of Minsk, which is the capital of the relatively small country within a country called Belorussia, that the KGB in Minsk was so busy that they wouldn't have found time to do a little bit of something in regard to Nosenko. That just strikes me as implausible.

Mr. DODD. Well, does it strike you also as implausible that here you have a young man who had served in the Marine Corps with

some specific training in the U-2 planes, who renounces his American citizenship at the American Embassy, announces to his Intourist guide that he wants to stay in the Soviet Union, that information then becomes available to the KGB, specifically to Mr. Nosenko, and that they determine on the basis of his entry application, or whatever the papers are, relatively simple forms, that he is uninteresting

Does that strike you as being plausible, that that would be the extent of their looking into the possibility of talking to this individual about what information he might give to them?

Mr. HART. I am not clear in my own mind. I may be wrong on this, but I am not clear that the KGB knew of Oswald's connection with the Marine Corps. My memory is that Mr. Epstein, who tried desperately to interview me on a couple of occasions, but didn't succeed, is that he takes credit for uncovering that fact.

I don't think that anybody was particularly aware of that, that fact. Therefore, it may have been that there were KGB priorities that didn't include him.

Mr. DODD. I am not suggesting, Mr. Hart, that they knew he was a U-2 pilot. You misunderstood my question. I am stating that as a matter of fact. But my concern is that here you have someone in the Soviet Union who announces he wants to stay, that he wants to live there, that he wants to become a Soviet citizen, and the KGB according to Mr. Nosenko decides that on the basis of his application to come to the country he is uninteresting.

Now, does that strike you as plausible, based on your information and your knowledge of intelligence and counterintelligence activities, that the KGB would dismiss that kind of a request merely by looking at the entrance applications, and not make an effort to talk to the person, to see what information they might be able to impart?

Mr. HART. Congressman, I find it implausible. I might say that if this had ever been the case within the experience of any of us who had anything to do with Soviet operations, it would have greatly facilitated our tasks in connection with putting people into the Soviet Union.

Briefly, no, I find it implausible.

Mr. DODD. All right. That is what I was trying to get at. I wonder if you might also just—and I will try to wrap this up as quickly as I can.

Mr. SAWYER. Could I interrupt just a second, just to correct. You made a remark to the effect, I think inadvertently, that Oswald was a U-2 pilot.

Mr. DODD. No. I apologize. I didn't mean he was a U-2 pilot. He had experience in working on U-2 planes—radar, I guess, is what it was.

I would like to dwell, if I could, on your comments with regard to the human experience that Mr. Nosenko was undergoing at the time of his defection. You talked about the expectation of a job, and so forth, the short memory that he apparently had, according to the Wechsler test that you gave to him, and his apparent drinking prior to being interviewed in Geneva.

Again, I will ask you, based on some of your expertise, because it may be difficult to reach an answer otherwise. Here you have a

man who has spent 10 years in the KGB. At the time he defects he is one of the top people in the Second Directorate. He is deputy chief of the Seventh Department of the Second Directorate. He comes and announces he wants to defect.

Now, he isn't a young college student deciding he wants to leave the country. He is an experienced intelligence officer. Do you think it is realistic to believe that Mr. Nosenko didn't appreciate from the day he decided to defect, if in fact he did, that he was going to undergo a tough period of time before we would believe him; and that, in fact, he must have known in his own mind that the idea of being immediately accepted, his story immediately being believed, immediately being placed in a job with an alias, was something that was not going to happen in a relatively short period of time?

Mr. HART. Congressman, I believe from what I know of Soviet treatment of defectors from the United States, who were valuable defectors, as he was, that they have been treated extremely well, that they have been given much less trouble, they have been welcomed, in fact.

Everything has been done to encourage that other people like themselves would come to the Soviet Union. They are usually given a stipend immediately. They are given living quarters. They are treated extremely well.

On the basis of what he knew of how the Soviet Union treated defectors, he would have assumed that he could be treated very well.

Now, on the basis of what he knew of how the United States handled defectors, which is not a glorious record, he would have had occasion to be fearful because it is true that it has often been very hard for even the most valuable person to defect to the United States. It has been rather difficult.

It is not just that they have difficulties. It is that we have difficulties accepting and believing them.

Mr. DODD. So your response to my question is that he could have and should have expected a rough time?

Mr. HART. He certainly could have expected interrogations to establish his bona fides. He should not have expected the sort of treatment he got because it has not ever been the experience of any other defector that he happened to know about at that particular time, with the exception of a man whom he did know about, who tried to defect in Moscow, and he was promptly—action was taken by the American Embassy without actually ever consulting the Central Intelligence Agency representative which resulted in that man being tracked down and I believe subsequently executed.

Mr. DODD. Mr. Chairman, can I just ask to suspend for one minute, before I yield my time?

Chairman STOKES. Certainly.

Mr. DODD. Just to resume, if I could, and I will try to make this the last question, you talked about the Wechsler test.

As I recall your statement you said that in the Wechsler exam of Mr. Nosenko's long-term memory, he showed being below the mean of someone with regard to long-term memory. Is that a correct assessment of your statement?

Mr. HART. He was below his own mean in terms of the various—I will see if I can hold this up. If you wish, I could bring it up to you and show it to you.

Mr. DODD. That is all right.

Mr. HART. Basically, what you have here is a profile, these are squares here, and you have the various—you have the 10 elements of his intelligence, which are graded. There are two down here, there is another one here, another one here, and so forth.

They are all superior to his memory; in other words, his memory was the lowest, showed up as the lowest element in those things, those qualities which go into making up this very indefinite term which psychologists really can't agree on, which is what we call intelligence.

Mr. DODD. I am not going to state it as a matter of fact because I am not 100 percent sure. I am going to make a request of the chairman that we ask the Library of Congress to give an assessment of what actually is contained in the Wechsler exam.

But in the half hour or hour since you have made that statement, I have done a little investigation to find out exactly what is included in a Wechsler exam.

While it was not a thorough investigation, I am told by the Educational Testing Service here in Washington, D.C., the director of that agency, who is a member of the American Psychological Association, that the Wechsler test is not designed nor is it fair to use that test in any way whatsoever to reflect long-term memory.

It is basically an intelligence test, and the only direct memory test is a digit span, showing someone a series of numbers for a matter of seconds and then removing them and asking them what those numbers were. It is primarily to test their ability to concentrate.

So, I would like to find out if I could, more about the Wechsler exam.

Mr. Chairman, I would make that request through you of the staff that we get a better reading on exactly what is in the Wechsler exam.

Chairman STOKES. It certainly may be done.

Mr. DODD. I can't resist asking you, Mr. Hart, that if you are right and I am wrong, and Mr. Nosenko had a bad memory, what are we paying him \$35,000 a year to be a consultant in 1978 for activities that occurred prior to 1964, if he has such a rotten memory?

Mr. HART. There are several questions implied, Congressman, in what you said. May I sort of start out in sequence, if you don't mind?

Mr. DODD. Sure.

Mr. HART. In the first place, what I was referring to was the digit span. The digit span, he got a weighted score of seven, which for one of this—a person of this performance would have been low.

Second, you can probably get a great many answers out of a great many people on the subject of the Wechsler adult intelligence scale.

What I use as my standard source on this subject is called "Wechsler's Measurement and Appraisal of Intelligence," by Dr. Joseph D. Moderatso, Ph. D., who is the psychologist who took over

the periodic revisions of the books on the Wechsler scale, which was first developed by Dr. David Wechsler at the Bellevue Hospital in New York.

This has been investigated, reinvestigated, and I took one 3-month course on this subject. You will find that various authorities on what these things mean differ considerably.

Basically, the memory span can be—there can be a correlation between short-term and long-term memory span. We don't have time in this committee—

Mr. Dobb. Why don't we do this. I have made the request we try to get an assessment of it. I am certainly not an expert on it. I think that may be the best answer. I would ask, however, Mr. Chairman, at this point that that piece of paper that you showed that apparently has a graph on it or some kind of a score, I would like to have that made a part of the record and marked as exhibit F-426, if that is in order.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[The information follows:]

AKV 21 ¹ ₁						
NO./NAME	GROUP	AGE	SEX	HL		

INFO	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	WTS	
COMP																								
DS																								
ARITH																								
SIMIL																								
PA																								
PC																								
BD																								
CA																								
DSY																								

DS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	WTS	
ARITH																								
INFO																								

BD	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	WTS	
SIMIL																								
COMP																								

PA	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	WTS	
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24 JUNE 1964

JFK EXHIBIT F-426

Mr. HART. May I ask that it be Xeroxed, rather than my turning this over, because I would like to keep this copy.

Chairman STOKES. We will Xerox that and substitute it for the exhibit in the record.

Mr. DODD. You want to answer the last part? If he has such a bad memory, why do we have him as a consultant?

Mr. HART. Yes. In fact, Mr. Nosenko is not used as an IBM machine which is a repository of information over the years. Mr. Nosenko is used as an intelligent human being who lived, worked in the midst of the KGB for a long time.

I think he is—if you met him, you would find him an intelligent man to talk to. He has interesting ideas on the subject of the Soviet Union. He reasons well. Like many of us, including myself, I might say, his memory is not as good as his powers of logical thought.

That same particular test has another little square on it which measures what is called similarities, and it measures the power of abstract thinking in a rather loose way. That happens to be one of his things on which he scores high.

Mr. DODD. For the purpose of the record, this committee spent more than 6 hours with Mr. Nosenko at the Central Intelligence Agency. So I thank you.

Mr. Chairman, I apologize for taking so much time.
Thank you, Mr. Hart.

Chairman STOKES. The time of the gentleman has expired.
The gentleman from Michigan, Mr. Sawyer.

Mr. SAWYER. Is it fair to say that his rating of seven really is not rated against the population as a whole being below average, but the lesser of his variable abilities?

Mr. HART. Exactly.

Mr. SAWYER. All of which are quite high?

Mr. HART. Exactly. I am saying—well, this seven is a pretty low weighted score for a person of his abilities because when you get down just a little bit before that, below that, why, you come into the level where you are likely to presume that a person is under stress or is having, subject to some type of retardation or something. It is pretty low.

Mr. SAWYER. The last of those optional dispositions, disposable items that you read there, out of that memo, as I understood you you said that the last of the three, after there was liquidation, and then there was something, drugging him so he could not talk, and then putting him in a loony bin, after first rendering him nice, is that what you said?

Mr. HART. No, making him nuts, sir. This was a memo of one man to himself, and therefore it wasn't couched in polite proper language.

Mr. SAWYER. But the thrust of it was at first you drive him insane and then put him in a loony bin?

Mr. HART. That is as I understand it, yes, sir.

Mr. SAWYER. Now, you said that people, all except one, are not in the Agency anymore. How did they come to leave? Did they get fired for this or did they just retire in the normal course?

Mr. HART. Sir, I would prefer that that question, which I believe is a very private matter, and affects a number of people, I think that should come from somebody in the command line of the Agency. I don't think it is proper for me to address personnel matters.

Mr. SAWYER. Well, do you know the answer to it?

Mr. HART. I think I know the answer to it, but I believe that the Director of Central Intelligence should reply to that. I am not a lawyer, and I do not have counsel to consult here. But I do feel that is an improper question for me to answer.

Mr. SAWYER. Now, you say Helms had limited information, or at least some limitation on the information that he received on this. He must have known about this torture vault or whatever it is you had specially built. He would have known about that, wouldn't he?

Mr. HART. He sent two people down to take a look at it before it was used. The two people happened to be the chief of the SB division, and the chief of the CIA staff.

Also, if I remember correctly, the chief of the Office of Security. They came back and said that it was a satisfactory place to keep someone.

Mr. SAWYER. But he must have known the general format of it, wouldn't you think?

Mr. HART. I can't say how much he knew.

Mr. SAWYER. He also knew apparently that they had held him in solitary confinement for 1,277 days.

Mr. HART. He did know that, yes, sir.

Mr. SAWYER. And actually, he thought they were interrogating him the whole 1,277 days, was that the thrust of the fact—

Mr. HART. Well, I am not sure he thought they were interrogating him every day. But I—and here I want to make clear that I am entering into the realm of presumption—I never saw any indication that anybody told him that 77 percent of the time that this man was in this prison, that nothing was happening to him.

Mr. SAWYER. He knew, too, apparently that they wanted to use sodium pentathol on him, which he turned down.

Mr. HART. Sodium amytal, but the same thing.

Mr. SAWYER. Did the Department of Justice know or were they advised what you intended to do with this man, when you were consulted?

Mr. HART. I do not believe that that was spelled out in detail. At the time that Mr. Helms went over to see Mr. Katzenbach, as I interpret events, nobody realized that this man would be held that long. I am quite sure that nobody had any thoughts that he would be held that long.

Mr. SAWYER. Well, did they tell the Department of Justice that they planned to subject this man to torture over this period of time by depriving him of adequate food and reading material?

Did the Department of Justice have any information what they were proposing or even the outlines of what they were proposing to do to this man?

Mr. HART. I do not believe that they did.

Mr. SAWYER. I don't have anything else, Mr. Chairman. Thank you.

Chairman STOKES. The time of the gentleman has expired.

Mr. Hart, I just have one question. It is based upon what I have heard here today. It troubles me, and I am sure that it is going to trouble some of the American people.

The American people have just spent approximately \$2.5 million for this congressional committee to conduct a 2-year investigation

of the facts and circumstances surrounding the death of President John Kennedy.

Pursuant to that, this committee met with Mr. Nosenko 2 successive evenings, where we spent in excess of 3 or 4 hours with him each of those evenings.

In addition to that, counsel for this committee, Kenny Klein, spent in excess of 15 hours with him preparing before the committee met with him. In addition to that, Mr. Klein has perhaps spent hundreds of hours at the CIA researching everything about Mr. Nosenko.

I want to predicate my question, my final question to you, upon this statement which appears in the staff report at page 17. It was read by Chief Counsel Blakey here earlier today in his narration.

It says:

Following acceptance of Nosenko's bona fides in late 1968, an arrangement was worked out whereby Nosenko was employed as an independent contractor for the CIA effective March 1, 1969.

His first contract called for him to be compensated at the rate of \$16,500 a year. As of 1978 he is receiving \$35,325 a year. In addition to regular yearly compensation in 1972, Nosenko was paid for the years 1964 through 1969 in the amount of \$25,000 a year less income tax. The total amount paid was \$87,052.

He also received in various increments from March 1964 through July 1973 amounts totaling \$50,000 to aid in his resettlement in the private economy.

We know in addition to that now about the home we don't know the cost of, that the CIA has built for him.

To this date, Nosenko is consultant to the CIA and FBI on Soviet intelligence, and he lectures regularly on counterintelligence.

So that I can understand, and the American people can understand, the work of this congressional committee, do I understand you correctly when you say that with reference to what Nosenko has told this congressional committee about the activities of Oswald in Russia, this man who is today, not 15 years ago but today, your consultant, based upon everything you know about this bona fide defector, you would not use him?

Mr. HART. Mr. Chairman, when the question arose about whether I would use—depend on the information which he offered on the subject of Lee Harvey Oswald, I replied that I find that information implausible, and therefore I would not depend on it.

I did not make that same statement about any other information which he has offered over the years or the judgments which he has given. I was addressing myself specifically to his knowledge of the Oswald case. I was making a judgment.

Chairman STOKES. Your judgment is that from everything you know about him, and from what you know that he knew about Oswald in Russia, you would not depend upon what he says about it?

Mr. HART. I would not depend on it, but I am not saying that he wasn't speaking in good faith because I repeat that one of the principal qualities of an intelligence organization, whether we like intelligence organizations or don't like intelligence organizations, is compartmentation as it is called.

That means that a person at his level might well not know about something which was going on up at a higher level. The KGB is a very large organization, considerably dwarfing any intelligence organization which we have and, therefore, it is perfectly possible for

something else to have been going on which he wouldn't have known.

Chairman STOKES. Can we then leave the term "in good faith," and can you tell us whether he would be telling us the truth?

Mr. HART. He would be telling us the truth insofar as he knows it, yes.

Chairman STOKES. Thank you.

The Chair recognizes counsel for the committee, Mr. Gary Cornwell.

Mr. CORNWELL. Mr. Hart, may we look at the document that you referred to several times that has the list of the ways in which they could have disposed of the problem that Nosenko posed at the time of his contemplated release? Is that a document we could look at?

Mr. HART. I would like, if I may, to simply excerpt this part of it. If that is an acceptable procedure, I will give you exactly what it was that I presented in my testimony.

I have here a mixture of things which have been declassified at my request, and not declassified and so forth. So, if you will allow me simply to make this available. There we are.

[The document was handed to counsel.]

Mr. CORNWELL. Mr. Hart, do you not have with you the items that would appear on the list prior to item number five?

Mr. HART. I do not have that with me. It would be possible to dig them up. The reason that they are not in there is that I considered them insignificant. I consider this obviously very significant, and I simply wasn't using up space with insignificant things.

In many cases throughout my study I was using portions of rather long documents. But it would be possible to find that, yes.

Mr. CORNWELL. All right. The portion that you did bring with you, though, however, seems to refer to notes which were prepared prior to 1968, is that correct?

Mr. HART. Yes, sir.

Mr. CORNWELL. By the deputy chief of the Soviet branch.

Mr. HART. Yes, sir.

Mr. CORNWELL. And at a time in which the Agency was contemplating the release of Nosenko, the release from confinement.

Mr. HART. Yes. The director said, as I remember his specific words, "I want this case brought to a conclusion."

First he asked for it to be brought to a conclusion within 60 days, which I think would have put the conclusion in sometime in September of 1966. Later on they went back to him and said, "We can't do it that fast," and he extended the deadline until the end of the year.

Mr. CORNWELL. And this was the same deputy chief of the Soviet branch who earlier in your testimony you stated had referred to potentially devastating effects from that release; is that correct?

Mr. HART. He later used that term. That term was used by him much later after he was no longer connected with the Soviet Division. That was in the letter which I described he wrote, so that it bypassed me as his superior, and I happened to find it in the file.

Mr. CORNWELL. And you testified that at one point, I believe, you didn't know specifically what dangers this deputy chief foresaw might stem from his being released; is that correct?

Mr. HART. He had refused to tell me. He refused to tell me. I can read you that.

Mr. CORNWELL. No, I think we remember that. But at least in this memo it appears that the principal fear that he had was with respect to the CIA being accused of illegally holding Nosenko; is that correct?

Mr. HART. That was a fear expressed in there. I frankly think that there must have been something else in his mind, but I, for the life of me, don't know what it was. He had built up a picture which was based on a good deal of historical research about a plot against the West, and since I don't happen to be able to share this type of thing, I don't know.

Mr. CORNWELL. I think we understand.

Let me simply ask you this: Nosenko has never publicly complained of his illegal detainment, has he? He has never taken that to any authorities and asked that anything be done with it, has he?

Mr. HART. He, I believe, when he was released, that in connection with the release but not as a condition of release, you must understand that this was not a condition of the release, but as of the time that the settlement was reached with him, I believe that he signed some type of document saying "I will no longer, I will not make further claims on the organization," something of that sort. I have never actually read the administrative details.

Mr. CORNWELL. That was the point that I was coming to.

Thank you.

Mr. HART. Yes.

May I say something more, Mr. Cornwell? He does periodically get very upset. He got very upset, for example, on the subject of the Epstein book. He is a very—he is a normal human being, and when he feels that he is being maligned, he gets just as upset as anybody else around.

Mr. CORNWELL. But your conclusion then is that in 1968 he was paid a large sum of money. In connection with it, he agreed not to voice any complaints about the way he was treated prior to that, and the fears that were at least in certain persons' minds prior to that did not come to pass.

Mr. HART. I don't believe, I do not interpret these events, although they can be so interpreted, as his being paid off not to cause trouble. The fact is that two responsible members of the Agency had made commitments to him, and they are clearly, you can hear them, you can see the tapes and you can, I believe, hear them on the tapes if you listen to them talking. They made commitments to him that they were going to do this.

Mr. CORNWELL. Thank you.

I have no further questions.

Chairman STOKES. You don't think though, Mr. Hart, that if he were to sue the CIA for his illegal arrest and detention that they would continue to keep him as a consultant, do you?

Mr. HART. Sir, you are getting into a point which I cannot speak about. I have no idea what they would do. As a matter of fact, I don't think he would do it. I think it is suppositious.

Mr. CORNWELL. Mr. Chairman, may we have the document that Mr. Hart provided marked as an exhibit and placed in the record?

Chairman STOKES. Without objection, and he may want to substitute a Xeroxed copy for the original.

Mr. CORNWELL. Thank you. It will be JFK F-427.

[JFK exhibit F-427 follows:]

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Deputy Chief, SB

in a series of handwritten notes, set forth the Task Force objective as he saw it: "To liquidate & insofar as possible to clean up traces of a sitn in which CIA cd be accused of illegally holding Nosenko." Further on, he summed up a number of "alternative actions," including:

5. Liquidate the man.
6. Render him incapable of giving coherent story (special dose of drug etc.) Poss aim commitmt to looney bin.
7. Commitment to loony bin w/out making him nuts.⁸²

JFK EXHIBIT F-427

Chairman STOKES. Mr. Hart, at the conclusion of a witness' testimony before our committee, under the rules of our committee, he is entitled to 5 minutes in which he may explain or comment in any way upon the testimony he has given before this committee. I at this time would extend the 5 minutes to you if you so desire.

Mr. HART. I don't think I will need 5 minutes, Mr. Chairman, but I thank you for your courtesy.

The final remark that I would like to make is that I have had 31 years, approximately, of Government service, both military and civilian, and participated fairly actively both as a, first, as a military man in the Army, and then in quasi-military capacities as chief of station in two war zones.

It has never fallen to my lot to be involved with any experience as unpleasant in every possible way as, first, the investigation of this case, and, second, the necessity of lecturing upon it and testifying. To me it is an abomination, and I am happy to say that it does not, in my memory, it is not in my memory typical of what my colleagues and I did in the agency during the time I was connected with it.

That is all, Mr. Chairman. I thank you.

Chairman STOKES. All right, Mr. Hart.

We thank you for appearing here as a witness, and at this point you are excused.

There being nothing further to come before the committee, the Chair now adjourns the meeting until 9 a.m. Monday morning.

[Whereupon, at 3:35 p.m., the select committee was adjourned, to reconvene at 9 a.m., Monday, September 18, 1978.]

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